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A Lecture
ON
THE RELATIONSHIP OF TUBERCULOSIS TO ACCIDENT AND INJURY.

Delivered at the Hospital for Consumption and Diseases of the Chest, Brompton,

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GENTLEMEN,—It is always somewhat difficult to find a suitable subject for a lecture in this course, as there are few themes which seem to present any degree of novelty, most subjects which fall within the limits proper for discussion at this hospital having been exhaustively dealt with by former lecturers or treated of in the excellent text-books of medicine now available. It occurred to me that the question of the relationship of tuberculosis to accidents and injuries is not often so discussed, and though only a small number of the cases in which the question arises are in connexion with the chest, yet these cannot be separated from the rest of the group, and their existence may justify the choice of the subject for treatment in a lecture at this hospital.

It is, indeed, a subject which has assumed very considerable importance in recent years owing to the enactment of legislative measures, such as the Employers' Liability Act and the Workmen's Compensation Act. Actions at law are frequent under these statutes, and it may fall to the lot of any practitioner to have to exercise his judgment as to the alleged causal connexion between an accident and some morbid condition which has followed it. The position of a medical witness is never, perhaps, a particularly enviable one, and it is especially unpleasant when he is called on to testify in regard to matters to which he has previously given little attention, and on which he has therefore formed no very clearly defined opinion.

On this account it may not be unprofitable to consider the theoretical principles which are applicable to such claims as may arise in connexion with tubercular infection. I shall have occasion to refer to one or two cases of this nature which have recently fallen within my own experience and have caused me to realise some of the difficulties which may trouble the medical witness or referee.

Now, the first important point which arises in cases of this kind is to establish the reality of the causal connexion between the accident and the subsequent tuberculosis, and we have to be clear in our minds as to what we mean by a cause. In ordinary speech we talk of cause and effect as if there was usually one cause which was always followed by a definite consequent, but a little consideration shows that the cause of any phenomenon is rather the existence of a group of conditions which unite to produce it, and the absence of any one of which would prevent its appearance.

Thus, in the case of an infective disease there must be first a pathogenic organism and a host capable of harbouring it, and then the germ must be brought into contact with the potential host, and the condition of the latter at the moment must be such as to admit of the growth of the parasite. The patient must be susceptible at the time of the attack, this susceptibility being a variable factor. We know, for example, that of those who are exposed to any infection only a small proportion actually "take" the disease, while a person who has escaped in one epidemic may fall a victim in another.

The important factors, then, which we have to consider in the present connexion are the possibility (1) that an accident or other injury may be the means by which tubercle bacilli are introduced into a person; or (2) that the injury may cause a weakening of natural resistance to the bacillus and thus permit it to establish itself when it would not otherwise have done so, or may lead to dissemination of the bacilli, thus giving rise either to a new focus of tuberculosis or to extension of one already existing.

Now there are certain peculiarities about the tubercle bacillus whereby the disorder resulting from its growth in the human body is distinguished from most other infective diseases. These characters tend to render the problem of the relationship between an injury and the subsequent tubercular infection specially difficult to determine.

1. In the first place, the organism is fairly ubiquitous, so that most, if not all, persons are brought into contact with it in the course of their lives. German writers have maintained that by middle life every one has been infected, the bodies of all persons who have reached or passed that period of life showing, if carefully examined, some deposit of tubercle. In the majority of instances no sign of the disease was ever manifested during life, but the existence of the healed lesions shows that the bacilli did at one time actually establish a footing and produce local disturbance.

And we know that in such lesions, even when they are apparently obsolete or quiescent, there are usually present living organisms which may set up further disease, either by direct spread in the neighbourhood or by carriage to distant parts, if the resistance of the individual is sufficiently reduced. A familiar instance of this spread from an old focus is seen in the acute general tuberculosis of young children, in whom we can almost always find a caseating gland from which the overwhelming dose of bacilli has been thrown into the circulation and led to the generalised affection. We cannot always trace the exact factors which thus lower the resistance, and the resulting attacks are apparently spontaneous; so that if we do not make a necropsy and thus discover the old quiescent lesion, we may even suppose that a fresh infection has occurred from without.

If, then, so many persons have quiescent foci of tuberculosis within them, and if we cannot usually determine exactly what has depressed the resistance and led to spread of infection in ordinary cases, it is clear that it must always be problematical whether any particular accident has been the cause at work. The outbreak may have been an accidental sequel, not a consequence of the injury.

2. Secondly, we have to recognise that the tubercle bacillus is a slowly growing organism in the majority of instances, so that symptoms of disease do not arise until some considerable period of time has elapsed after its actual introduction into the body or its establishment in some new focus. Contrast it, for example, with the infection of erysipelas, in which severe symptoms will probably develop within a few days of the introduction of the germ, or even with tetanus, in which a fortnight or three weeks may elapse. In the case of tuberculosis months may pass after an injury has occurred before any sign of disease is recognisable. Even when such do appear they may not be at first acute or striking.

It will be most convenient to consider under the different classes of cases the evidence on which we have to rely to establish a connexion between a distant accident and subsequent tuberculosis. We may consider first those instances in which the tubercular infection results directly from the injury, and afterwards those in which the latter produces some weakening of resistance or other disturbance in a person in whom tubercle bacilli are already present, and thus leads to extension of the disease.

I.—DIRECT INFECTION WITH TUBERCLE BACILLI.

This may result from injuries caused by instruments to which the bacilli are adherent, or from subsequent infection of an open wound by contact with infected objects.

Of the former type the best-known example is the often-quoted case of the nurse who cut herself with a fragment of a broken spittoon which had contained tuberculous sputum (Tschering). Similarly, in the process of tattooing, a tuberculous operator has inoculated the disease, either by moistening the skin with saliva, or owing to the needle being contaminated by being held in his mouth when out of use. As is well known, syphilis has been conveyed in the same way. Letulle records a case in which a woman, while scrubbing the floor of a room in which her husband had recently died from tuberculosis of the lungs, ran a splinter of wood from one of the boards into her hand; the wound subsequently became the seat of tuberculosis. A bite from a tuberculous husband is said to have caused the appearance of local tuberculosis of the lip (B. Schmidt).

Butchers and veterinary surgeons are liable to inoculation in the course of their work in cutting up infected cattle. Thus Pfeiffer describes the case of a veterinary surgeon who cut his thumb in dissecting a cow; tuberculosis of one of the

articulations followed, and ultimately tuberculosis of the lungs. Pathologists may suffer similarly in making human necropsies, and in days before the wearing of indiarubber gloves was as general as it now is, it was not uncommon for them to be affected with the condition known as "anatomical tubercle," or tubercula necrogenica, a form of slowly developing verrucose tuberculosis of the skin arising either from inoculation of slight cuts or scratches, or from the entry of the bacilli through sweat-ducts or hair-follicles.

Infection of existing wounds by bacilli may also occur, as in the case of a laundress who suffered from a whitlow. This was infected with tuberculosis in the course of her occupation, through washing the linen of a tuberculous patient. A consumptive mohel, or ritual operator, has been known to spread infection in the performance of circumcision, either by applying his mouth to the wound to stop bleeding or by squirting a mouthful of wine over the cut surface as part of the procedure.

It is often difficult to distinguish between the two classes of cases just considered, as we do not know if the object causing the injury was itself contaminated. Thus, in one recorded case, in which a butcher's assistant fell and cut his elbow, the wound subsequently becoming the seat of tuberculosis, it may have been that the bacilli were inoculated directly at the time of the accident, being present on the portion of ground with which he came into contact, or the wound may have been subsequently infected in the course of his occupation (Wichmann).

Before leaving the present group we may note the sequence of events. There is first a wound or abrasion. The resulting tuberculosis may be limited to the skin, taking the form of lupus or verrucose tubercle; or the trouble may spread deeper. In the latter event its natural course is by the lymphatics, which become the seat of tubercular lymphangitis, and the lymphatic glands to which they lead become involved. The intervening lymphatics may appear to escape, as in a case quoted by Niché, in which a man cut his hand in undoing a bundle of straw. Subsequently a swelling appeared in the corresponding axilla, which was refractory to treatment, and had to be removed by operation. It was found to be tuberculous. Other glands became affected and were removed, and finally recovery resulted.

Involvement of neighbouring bones and joints seems to be not uncommon. Thus a man infected his hand in cutting up tuberculous meat, and subsequently suffered from tuberculosis of one of the carpal bones (Rudolph). Even so distant a part as the lungs may ultimately suffer, as in Pfeiffer's case already referred to. A similar sequence following a post-mortem wound is narrated by Letulle; here glandular infection, instead of disease of a joint, preceded the lesion in the lungs.

In another instance a man, aged 30, bruised his foot with a stone which fell on it. The ankle-joint swelled first, then tuberculosis of the skin ensued, followed by tuberculosis of the bones of the foot (which was amputated), and finally by pulmonary tubercle (Feilchenfeld). It seems probable that tuberculosis of the skin implies an infection from without, so that this may have actually been a case of direct inoculation or subsequent infection; but the phenomena closely resembled those seen in the next class of cases with which we shall have to deal.

In the accounts given of the cases referred to no difficulty seems to have been experienced in tracing the connexion between the injury and the subsequent tuberculosis. Symptoms of infection occurred within a few weeks of the occurrence, and the anatomical relationship of the glands or bones affected to the site of injury was fairly close, while in the case of the skin the identity of the seat of the lesions was apparently obvious. So far as the skin is concerned, there will probably be a visible scar remaining, and the cutaneous affection may be readily shown to be connected with this. The original wound may sometimes refuse to heal, or it may seem to heal and then break down again, as in Kluge's experience. This surgeon cut his hand at a necropsy, and the wound healed up; it broke down again ten weeks later as the result of hard riding in the course of his military duties, becoming the seat of tubercular disease; and a condition of tubercular teno-synovitis persisted for some time.

It is worth noting that the term "accident" is apparently given a somewhat wide meaning by courts of law. Hence claims may arise in connexion with any infection arising out of a person's employment. To discuss such subjects as grinder's tuberculosis connected with the inhalation of dust and of tubercle bacilli at their work, or the liability of laundresses to contract the disease from contact with the linen of infected persons, would lead us too far afield. Experience at this hospital certainly points to laundresses as being frequently subject to consumption, but this is probably due to the conditions under which they work rather than to direct infection from the clothes washed.

II.—Extension of Existing Tuberculosis owing to Weakened Resistance or Dissemination of Bacilli.

Under this heading we have to consider all cases in which the bacilli are present in the patient at the time of the accident, which leads either to a local extension of the affection or to its appearance at some distant part of the body. We may also include for convenience those cases in which some new symptom is induced, even apart from ascertainable spread of the tubercular deposit.

If we consider first the pathology of the matter we recognise that a local focus of tuberculosis consists in a mass of inflammatory tissue, the centre of which is probably caseous and soft, living bacilli existing both in the tissues and in the central puriform material. The commonest places for such localised deposits are the lymphatic glands and the lungs. If only deeply seated glands are affected there may be no signs of the disease discoverable, and the person will very probably pass as sound even on careful medical examination. When the lung is involved close scrutiny will usually reveal some alteration of the normal conditions, but not necessarily enough to make diagnosis at all certain.

When the focus of disease is quiescent it is probable that the bacilli remain imprisoned in the inflammatory mass; but whenever it is active, it is at least probable that some of them from time to time escape into the circulation. In the case of pulmonary tuberculosis many observers have carried out systematic examinations of the blood to ascertain whether tubercle bacilli could be found in it. The results obtained have been divergent, some observers finding them only rarely in the circulation, others noting their presence almost invariably. We may conclude that they are at all events frequently "at large." The same is probably true in the case of local tuberculosis of other organs. Hence a source of potential infection is present in many persons, and we can realise how the occurrence of a focus of diminished resistance might admit of the parasites effecting a new settlement in some distant part.

Again, an injury may result in a tearing of the tissues forming the focus of disease, and so may directly cause a liberation of bacilli into the circulation. Thus curettage of a tubercular area may cause an outbreak of miliary tuberculosis, and rough manipulation of a diseased joint may similarly cause an extension of the disease. The extension may be confined to the parts surrounding the original focus or may involve distant organs. A symptom arising from this tearing of the tissues—or from increased strain thrown on the blood-vessels with consequent rupture—which is very common in pulmonary cases, is, of course, the onset of hæmoptysis.

These considerations are fairly simple and straightforward, but the question of the mode in which a local injury predisposes the part affected to become the seat of tuberculosis—depresses its resistance to the germ—is not easily solved. The class of tubercular trouble most often assigned to preceding injury is chronic tuberculosis of joints (white swelling). Now it is generally admitted that severe injuries, such as dislocations, are not often followed by tuberculosis of this nature. The causal condition is some comparatively trivial accident, such as twist or sprain.

We must bear in mind that among certain classes there is always a tendency to find an origin for disease in some antecedent accident, and among them slight injuries are so common that one can usually be found to which any trouble can be attributed. Hence there is room for some scepticism as to reality of the cause assigned in many of such cases. Nevertheless, the balance of opinion seems at present to accept the truth of this mode of causation, and it is supported by evidence of weight. For example, the authorities of the French War Office find that the majority of cases in their army in which amputation of the foot has to be carried out for tubercular disease are attributable to old sprains (*foulures*), and in the case of soldiers the occurrence of the accidents will probably be actually on record and

readily verifiable. This consensus of opinion is reflected by most authors of surgical textbooks and articles, who generally admit this mode of causation, though they differ as to the percentage of cases in which it is found.

Now the pathology of a sprain may be supposed to consist in stretching of ligaments, with rupture of some of their fibres and possible rupture of blood-vessels and extravasation into the joint, followed by reactive hyperæmia, exudation, and multiplication of connective cells, resulting finally in repair. The phenomena accompanying a dislocation are presumably the same, with the trifling exception that the bones forming the joint are displaced from their normal apposition. It is, therefore, not clear why the slighter injury should be followed by tuberculosis and not the more severe. The explanation given—that in the latter case the inflammatory reaction is greater and that the bacilli are prevented from settling by the more thorough flushing with inflammatory fluids—seems inadequate, as the process must go through different degrees of severity in its course towards recovery. Probably the explanation is that tuberculosis only follows injury in a small proportion of all cases, and slight injuries are common, whereas grave lesions are rare; hence the rarity of instances in which it is attributed to grave accidents.

Again, it is remarkable that these cases of tubercular disease of joints arising after injuries occur as a rule in persons who are not obviously the subjects of an existing tuberculosis elsewhere, whereas injuries in consumptive persons do not usually, so far as I am aware, become the seats of tuberculosis, though Feilchenfeld records the case of a man, aged 35, a consumptive, who sprained his wrist and subsequently suffered from tubercular disease of this joint.

The attempt to throw light on the problem by experiments on animals has not led to any very definite results. Thus, early experimenters found that it was possible, by injuring a joint and then injecting tuberculous material into the circulation, to produce an arthritis; but Lannelongue and Achard showed that the inflammation of the joint was due in these cases to other germs than the tubercle bacillus, the condition being septic rather than tubercular. Some experiments of Petrow with pure cultures have, however, established the possibility of a true tuberculosis resulting under these conditions, but the doses of bacilli used were very large compared with anything likely to be present in ordinary conditions of disease. Recently Moultanovsky has found that tuberculosis can be similarly induced in the muscles of rabbits—a tissue not naturally susceptible to this form of infection—by bruising them and then injecting the bacilli into a vein of the ear.

On the other hand, Petrow noted that in tuberculous animals bacilli might be found in the epiphyses and joints, even when no signs of disease were discoverable there, and suggested that an injury may rather light up a smouldering infection than lead to a settlement of circulating organisms there. That this is the case in some instances of human disease seems undoubted, as Lannelongue found that careful inquiry into the past history of some of these patients revealed that there had been pain or swelling of the joint before the accident; and X-ray examination or post-mortem inspection has in other cases proved the existence of old disease.

So far as the question of compensation for accident is concerned it is probably immaterial whether the injury has led to a deposit of tubercle in a part or has merely quickened a latent infection: it is equally a cause of the condition leading to the worker's incapacity. But from the point of view of pathology, there seems much in favour of adopting this last view of the causation of traumatic tubercular arthritis.

It is not necessary for our present purpose to quote a series of cases of articular disease following accidents, as the condition is well recognised and is dealt with in the text-books. It is only needful to point out that there is often a considerable interval between the accident and the appearance of the graver disease; and that the interval may either be quite free from trouble of any kind, or some pain and limitation of movement may persist. The following case of spinal tuberculosis may illustrate the sequence of events after an inquiry.

A middle-aged man was carrying a heavy parcel in each hand and fell in descending an iron staircase. He struck his back in so doing, but was able to continue his work for some weeks, the pain due to the local bruising of the skin and muscles of the back gradually passing off. About six weeks after the accident he noticed a return of pain, and this at times radiated into the legs. Then weakness of the legs gradually ensued, and he came into hospital for this condition. On examination he was found to have weakness and wasting of the muscles of the lower limbs, and an examination with the X rays showed that the upper lumbar vertebræ were disorganised. There were râles in the chest over the upper parts of both lungs and irregular fever of remittent type; but a single examination of the sputum did not reveal the presence of tubercle bacilli. The man developed signs of consolidation of the lower lobe of the right lung with increased fever and weakness, and died in the course of a few days.

No necropsy could be obtained, but there seems little doubt, in spite of the one negative search for tubercle bacilli, that he was suffering from pulmonary tuberculosis, which had existed before the accident, and that as the result of the latter he had developed Pott's disease of the lumbar vertebræ. The strain suffered by the vertebral column had either afforded a spot of weakened resistance to the bacilli circulating in the blood or had awakened to life a quiescent focus of tuberculosis previously seated in the spinal column.

Instances of tuberculosis of the lungs following injury to the chest have been recorded. Thus a mason fell and fractured his skull. He was trephined and recovered from the injury, examination of his chest revealing at this time no disease. During convalescence he developed pain in the side and signs of consolidation of the lung, the condition proving to be tubercular (Thiem). In another case, a man was struck in the side by a heavy box, the injury causing pain in the side in breathing and slight dulness on percussion. Six months later he suffered from hæmoptysis and was found to have tubercular disease (Thiem). In neither of these cases, perhaps, is it absolutely clear that the tuberculosis was produced by the injury.

Jaccoud records the case of a man who received a violent blow in the side, followed by pneumonia. He seemed to recover from this, but some dulness and râles persisted in the affected area. No tubercle bacilli could be found in the sputum. Nineteen months later he developed definite signs of tuberculosis and bacilli were found. The condition terminated fatally, and at the necropsy the appearances suggested that a primary pneumonia had "become tuberculous."

Perhaps the most striking case is that recorded by Schrader. A man, previously healthy, fell from a cart and was rendered unconscious. He attempted to do his work next day, but felt so ill that he had to give up and went into hospital. Here he was found to have severe bruising over the region of the right shoulder, and signs of pneumonia developed in the upper part of the right lung. Ultimately the whole right lung became affected; no fluid was found on puncture of the pleural cavity. The sputum "showed nothing abnormal." Fever of a remittent type continued, and about five weeks after the original accident tubercle bacilli were found in the sputum. The signs gradually abated and recovery finally ensued.

It may be remarked that it is not definitely stated that a search for tubercle bacilli was made when the sputum was first examined, and that even if it were, a single negative examination is not conclusive; so that the possibility remains that the condition was tubercular throughout. It may have been a case in which an accident awakened an existing lesion into activity. Still the connexion of the injury with the subsequent disease is manifest.

The pathology of these pulmonary cases is not very clear. It is suggested that a pneumonia may result from an accident, and that this may "become tubercular." Schrader states that such a sequence is well recognised, but so far as my own experience goes it must be very rare for an ordinary croupous pneumonia to act as a starting point of tuberculosis. A condition of bruising with hæmorrhage in the pulmonary tissues might give rise to similar physical signs, and might, perhaps, provide a suitable soil for the bacilli, if it be true, as has been stated, that miliary tubercles are found in the tissues around extravasations of blood. We must, however, bear in mind the possibility that in these cases there may have been latent tuberculosis of the lung before the accident, and that this was quickened into fresh activity by the lesion.

Another sequence that may be met with is the appearance of pleurisy, with or without effusion, as the result of an injury; signs of tubercular affection of the underlying lung

may subsequently appear. It is even stated that injury to one part of the chest wall may result in tuberculosis of a distant part of the lung, but I think that one would be justified in regarding such an occurrence with considerable scepticism and demanding rather stringent proof of the causal relationship.

With regard to this group of cases, if we are called upon to express an opinion as to the probability of a tubercular lesion being due to a preceding accident, I think we must put disease of joints in a class by itself. There is a considerable mass of evidence, as was noted above, that in some way or other injury does lead to tubercular arthritis; and if the occurrence of the accident is clearly established, and it is followed at a reasonable interval by the tuberculosis, we may accept the causal connexion as probable. As to what constitutes a reasonable period of time, opinions may differ, but it seems unlikely that symptoms would be delayed for more than three months. Also we must look for some sign that recovery has never been perfect—some persistence of pain or stiffness in the joint in the interval. If such have been noted we are almost entitled to speak with that degree of certitude which is beloved by courts of law and sometimes assumed even in matters of opinion by so-called expert witnesses.

On the other hand, if the onset of a case of pulmonary disease were attributed to an injury, we should be obliged to regard the assumption with grave doubt, since the sequence is undoubtedly rare and its very existence may be doubted. To justify such a claim it would be necessary to establish the fact of a grave injury to the chest in the first instance and the probability that the patient was previously sound; and proof must be given that the tubercular lesion has developed at the seat of injury and that some signs of disease have been constantly present there since.

AGGRAVATION OF EXISTING DISEASE.

That injury may cause aggravation of an existing tubercular condition is well established and easily intelligible. Such a result may occur in any part of the body, and the three following examples, taken from Feilchenfeld, may serve as illustrations.

An officer in jumping (on a horse) injured his sacrum and died shortly afterwards with acute generalised tuberculosis. At the necropsy there was found old sacro-iliac disease from which the general infection had spread.

A man slipped and fell, striking his abdomen. He died with symptoms of acute peritoneal trouble, and after death it was found that the mesentery was the seat of old disease and that there was extension of miliary tubercles to the rest of the peritoneum.

A man suffering from consumption fell and broke some ribs. This accident was followed by pleurisy and by aggravation of the disease in the lungs.

In considering questions arising out of cases of this nature we must note that it is only when the injury affects the tuberculous part directly that we can admit without scruple that subsequent increase of the disease is due to it. Much more difficult are cases in which a claim arises that a distant injury has aggravated the existing disease. That it may do so is probable on general grounds, as it is admitted that intercurrent disease—e.g., influenza or erysipelas—may excite the infection to greater activity, and it is reasonable to suppose that an accident may depress the sufferer's resistance. Thus, I have seen a case of acute pneumonia following a motor-car accident, in which the shock and subsequent confinement to bed were apparently predisposing causes of the malady. The same sequence might conceivably lead to aggravation of an existing tuberculosis, but it must be admitted that ascertainable instances of such a sequence are not easy to find.

Feilchenfeld, from whom I have already borrowed so many illustrative cases, records an instance in which a consumptive man was run over by a train, the accident necessitating amputation of the leg. This was followed by prolonged suppuration, and the pulmonary condition was aggravated and death accelerated by the weakening effects of the pyogenic trouble. This case is, however, rather one in which an intercurrent infection was the cause of lowered resistance to the tubercular attack. The mechanism of its action is intelligible in the light of the known phenomena of immunity, which depends on the supply of various chemical bodies, such as bacteriolysins, opsonins, and so forth, so that if the resources of the patient are used up in combating one form of infective agent there will be less available to resist a second.

Of the conditions subsisting in those suffering from the shock and neurasthenia which may follow an accident we know very little, and therefore we have no valid theoretical basis to support any suggestion that such a result of an injury has acted prejudicially on a pre-existing tuberculosis. Still more doubt would arise if it were claimed that an injury and its resultant shock had so depressed a healthy person's resistance that he subsequently fell a victim to tuberculosis of the lungs or elsewhere. I do not know of any instance in which such a claim has been preferred, and I think it would be very difficult to substantiate, but it is well to bear in mind the possibility of such a suggestion.

Before it could be admitted that an accident had aggravated an existing focus of tuberculosis situated at a distance from the part affected by the injury, it would in any case be necessary to show that it was of such gravity as to produce a clear deterioration of general health. Nevertheless, frivolous claims may be formulated in this connexion. Thus, a man came to this hospital suffering from pulmonary tuberculosis and attended for some three months. He then ceased to come and resumed his occupation in a dairy. While at work he scalded his leg, the burn being of the first and second degrees, and involving an area of about the size of the hand. It was treated and healed normally. He came again for treatment for his chest condition, but said nothing of the accident, clearly attributing no importance to it; but after his death, which ensued very shortly, a claim was made by his widow that the accident had accelerated his decease. The case came into court, but the plaintiff did not put in an appearance, the claim being obviously indefensible.

HÆMOPTYSIS.

Lastly, we may refer to the occurrence of hæmorrhage as a result of strain or injury, as it is a common subject of questions. The simplest type of case may be seen in that of a youth aged 18, who came to this hospital saying that he had been lifting a weight, when he was suddenly seized with hæmoptysis. This did not recur, and he stated that he was none the worse for it. Examination revealed tuberculosis at the apices of both lungs, which had evidently been present before the accident.

In a second case a middle-aged man was violently bent backwards by the weight of a heavy ladder thrown on to his arms. He felt pain in the chest for 15 or 20 minutes afterwards, but continued his work. Next day he felt ill, and in the evening was sick and giddy and brought up a small amount of blood; he stated that he vomited and did not cough it up. This recurred several times during the night and the next two days. Since the accident he had been short of breath and had suffered from cough. On examination about a month after the accident there were signs of chronic tuberculosis at the apex of the left lung. He improved markedly under treatment in this hospital, where he came under the care of my colleague, Dr. A. J. Jex-Blake.

Reports of cases of this nature could easily be multiplied if time permitted. The first question generally asked with regard to them is whether the tuberculosis was present before the accident. Now, in any case of hæmoptysis the presumption is that the hæmorrhage is a symptom of previously existing disease. We do not now believe in hæmoptysis giving rise to phthisis (phthisis ab hæmoptoe) as was taught by our forefathers in medicine. It is not impossible that a strain might lead to rupture of a pulmonary vessel apart from tubercular infection, but such a bleeding would not be followed by phthisis. We can be practically sure that if signs of consumption appear soon after an attack of hæmoptysis, there was latent disease present before the occurrence.

We must, however, be prepared to support our views on this point by evidence derived from the signs in the chest and the pathology of the disease. I have not time to deal with this question at length, but it is clear in the first place than an extensive distribution of the physical signs usually implies disease of some duration—e.g., if both apices are affected. In the comparatively rare cases in which a large portion of lung is rapidly involved in an acute tubercular process, the general state of the patient—fever, weakness, and so forth—will readily elucidate the acute nature of the condition. Coarse râles generally point to chronic trouble,

as contrasted with the fine crackles heard over a patch of recent consolidation. Thickening of the pleura also points to long-standing disease.

A more difficult question is that of the effect of the accident on the patient's general health—whether it has aggravated the tuberculosis of the lung as well as causing the hæmorrhage. Of the two cases I have quoted, in the first no such ill-effect seemed to have ensued, and the result of the accident was only to stop the lad from working till the bleeding point had safely closed up.

In the second instance above, there seemed to have been some aggravation of the disease, as the patient who had previously thought himself quite well became weak and short of breath. He rapidly improved, however, and the still more insoluble problem arose at a subsequent period, as to whether he had then recovered from the effects of the accident. It was clearly impossible to disentagle with any certainty the effects of the original disease from those of the slight exacerbation produced by the strain. It seemed, however, reasonable to believe that if improvement occurred the effects of the recent acute process produced by the accident would subside before the effects of the chronic lesion, and after a lapse of about three months, when I re-examined the patient, I came to the conclusion that he was suffering from his original malady and had recovered from the accident.

I hope I have said enough in this brief sketch of the subject to indicate the nature of the problems involved in any study of the relations of tuberculosis to injury and accidents, and to show the importance of such study in view of the social arrangements of our own time.

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Researches INTO SENSORY DISTURBANCES FROM CEREBRAL LESIONS.

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(Continued from p. 4.)

II.—SENSORY DISTURBANCES ASSOCIATED WITH CERTAIN LESIONS OF THE OPTIC THALAMUS.

1.—INTRODUCTION.

THROUGHOUT this work it has been our aim to discover the nature of the abnormal sensations evoked by disturbances at different levels of the nervous system. So far our task has been a comparatively easy one on account of the certainty with which the level of the lesion could be determined even in life.

We know that all afferent fibres passing upwards from the mid-brain end in the optic thalamus. Here lie the synaptic junctions of those paths by which impulses are carried onwards to the cortex; no path passes upwards without undergoing a relay in some part of this organ. We shall now attempt to discover the changes in the grouping of afferent impulses which occur after they have terminated in the optic thalamus, and the part played by this organ in sensation.

It is obvious that if all afferent impulses undergo a relay in the optic thalamus, a lesion at a point where they enter this organ may interrupt them before they have undergone re-grouping: they may be cut off before they have reached the thalamic junction, and the loss of sensation would then correspond to that produced by a lesion of the mid-brain, although the disease might lie in the optic thalamus. On the other hand, sensory impulses may reach the optic thalamus undisturbed and undergo characteristic changes in grouping; but the fibres which conduct them from the thalamus to the cortex may be interrupted by the lesion. Finally, since lesions of the optic thalamus are usually of vascular origin and tend to disturb anatomical areas rather than functional paths, they not infrequently interfere both with the impulses which enter the thalamus and with those which pass away from this organ to the cortex.

Our business is to determine the nature of the sensory changes produced by interruption of sensory impulses at various points in their course, and for this purpose we must be able to recognise that a lesion is situated within the optic thalamus. This we can do largely owing to the work of Dejerine and his pupils; for he pointed out, first with Egger [6*] and later with Roussy [7], that lesions which involve the optic thalamus are often characterised by a group of symptoms of which pain in the affected half of the body and other sensory disturbances form an integral part. These clinical symptoms and signs have been further elaborated by Roussy [33], and have been erected by him into a "*syndrome thalamique.*" He has shown that a lesion of the optic thalamus may produce the following characteristic changes:—1. A persistent loss of superficial sensation of one-half of the body and face. This loss to touch, pain, and temperature is more or less definite, but the loss of "deep" sensibility is always more pronounced. 2. Slight hemiataxy and a more or less complete astereognosis. 3. Acute pains on the same side, persistent, paroxysmal, often intolerable, and yielding to no analgesic treatment. 4. Slight hemiplegia which produces no contracture and rapidly passes away. 5. Choreic and athetotic movements in the limbs of the affected side. He pointed out that the sensory loss and the pains are alone due to the lesion of the optic thalamus, whilst the other symptoms are produced by destruction of surrounding parts.

Roussy has now established the anatomical significance of this "*syndrome thalamique*" by five post-mortem examinations. Others have been reported which show the truth of Dejerine's original generalisation.

We ourselves have observed 24 more or less similar cases, with sufficient symptoms and signs to justify us in diagnosing a lesion in the optic thalamus, such as Roussy has described.

The loss of sensation differs in no way from that produced by interference with sensory impulses, either as they enter the optic thalamus or as they pass to the cortex by way of the internal capsule. But to these familiar defects another factor may be added when the lesion destroys certain parts of the optic thalamus. This fresh factor, which alone can be attributed to the disturbed activity of this organ, is a tendency to react excessively to unpleasant stimuli. The prick of a pin, painful pressure, excessive heat or cold, all produce more distress than on the normal half of the body, and this is the essential feature in all the cases with which we shall now deal. There are other cases where the optic thalamus is destroyed in which the spontaneous pains and the characteristic over-response may be absent; but with these we are not concerned at present.

2.—THE EXCESSIVE RESPONSE TO AFFECTIVE STIMULI AND THE BEHAVIOUR IN STATES OF EMOTION OF THE ABNORMAL HALF OF THE BODY.

A.—*The Response to Unpleasant Stimuli.*

(*a*) *To Prick.*

After quoting a case (Case 5) as a characteristic instance of the "*syndrome thalamique*" described by Roussy, the lecturers continued:—

We shall now proceed to investigate the patient's behaviour to measured painful stimuli. If a pin is lightly dragged across her face or trunk from the right to the left half she exhibits intense discomfort when it passes the middle line; she not only calls out that it hurts her more but her face becomes contorted with pain. But she insists that although the stimulus is more painful, it is "less plain" and "less sharp" than over normal parts; the prick is less distinct but it hurts her more.

This "hyperalgesia" or over-reaction would seem to point to a lowered threshold to the prick of a pin. But measured stimulation with both the spring and the weight algesimeters shows that, if anything, the threshold is a little raised. She never responds with certainty over the abnormal (left) half of the body to a stimulus which evokes a sensation of pricking on similar normal parts to the right of the middle line.

* These and other reference numbers relate to a bibliography to appear at the end.

Moreover, if a measured stimulus of the same strength is applied to similar parts more pain is evoked over the affected than over the normal half of the body; the same stimulus, provided it is sufficiently strong to cause pain, produces a more uncomfortable sensation on the abnormal side.

This remarkable over-response to prick was present in 20 out of 22 cases in which the strength of the stimulus was carefully measured. But in no instance was the threshold lower on the affected half of the body; in 13 cases it was identical on the two sides, and in 9 a decidedly stronger stimulus was necessary to produce a sensation of prick in spite of the greater discomfort experienced by the patient when pain had once been evoked.

(b) Painful Pressure.

Throughout our work we have attempted in every case to measure the amount of pressure which evoked pain. Cattell's algometer was applied to similar parts on the two halves of the body, and the point was registered at which the pressure became uncomfortable.

Now in the class of case with which we are concerned here, pressure is peculiarly liable to produce greater distress and an increased reaction on the affected side. Out of 24 patients every one responded more violently to painful pressure, and all complained that the same pressure, if it evoked discomfort, was more disagreeable on the abnormal than on the normal half of the body.

Moreover, this pain did not develop gradually out of the painless sensation of pressure as on the normal side, but seemed, over the affected parts, to appear explosively. Up to a certain point the patient remained unconcerned, but suddenly, as the pressure increased, he would cry out and withdraw the limb to which the instrument was applied; from the expression of his face he had obviously been more hurt than by the same pressure on the equivalent normal part.

This increased reaction is frequently, though not necessarily, associated with the lowering of the threshold; the same pressure may be required on both sides to evoke pain, although the response on the affected half of the body is excessive (6 cases). In 3 cases, including one which came to post-mortem examination, the threshold was actually higher on the side of the greater reaction.

Although this increased reaction may occur with a normal and even with a raised threshold, we found that in 15 out of our 24 cases the pressure necessary to cause discomfort was less on the affected side. This was particularly the case on the palm and sole of the foot. But in spite of this lowering of the threshold to painful pressure, not one of these cases showed a lower threshold when the stimulus was a prick. Obviously the pain produced by excessive pressure contains some sensory factor to which the abnormal half of the body is peculiarly susceptible.

Now if anyone will apply the algometer to his own hand or foot he will find that the pressure causes discomfort rather than pain. There is something terrifying about the crushing sensation, especially when a bone is pressed upon. The condition evoked is less a pain than an unbearable and distressing sensation, and in this way differs profoundly from the prick of a sharp point. Both stimuli produce pain and discomfort; but whereas a prick produces a sensation of pain associated with more or less discomfort, pressure upon bones and other deep structures evokes more discomfort than formal pain.

In these cases of over-reaction on the affected half of the body it is susceptibility to the uncomfortable element of a stimulus which is increased rather than sensibility to pain. Not uncommonly the threshold may be actually raised to prick but lowered to pressure-pain, although both stimuli produce greatly increased discomfort over abnormal parts.

Any loss of sensibility to pain delays the appearance of this over-reaction, but as soon as the stimulus is strong enough to cause pain the discomfort will greatly exceed that produced by the same strength of stimulus over normal parts.

(c) Extremes of Heat and Cold.

Wherever this over-reaction to painful stimuli exists the response to the more extreme degrees of heat and cold is changed. Thermal appreciation may be unaltered, may be diminished, or may be actually lost, and yet the discomfort produced by cold and hot water will be greater on the affected than on the normal half of the body.

All sensibility to heat and cold may be lost, and yet this over-reaction may still occur on the affected side. But in such cases the stimulus must be intense; the heat applied must be above 50° C., and the cold required will usually lie below 15° C, and sometimes even melting ice is necessary to evoke this over-reaction. But when once a stimulus has been found capable of producing a response, the discomfort is excessive on the affected half of the body.

To the most interesting group, however, belong those cases where an excessive response was evoked on the affected side in spite of a thermal sensibility otherwise perfect. In one case, for instance, the threshold for the appreciation of heat and cold was identical on the two halves of the body. But whenever a stimulus produced any but the mildest sensation of cold it seemed "colder" and more unpleasant over the affected than over the normal palm. A stimulus recognised as warm did not become "hotter" on the affected hand until it was raised to between 40° and 45° C.

Thus, in conclusion, whenever a thermal stimulus can produce discomfort this will be greater on the affected than on the normal side. Should the appreciation of heat and cold be sufficiently preserved this discomfort will be thought to imply a higher or a lower grade of temperature in the stimulating object; it will seem "hotter" or "colder" than the same temperature on the normal side. If thermal sensibility is equally perfect on the two halves of the body the excessive response will begin as soon as the stimulus seems definitely cold. But it will not seem "hotter" on the affected side until the temperature of the stimulus reaches about 45° C. or above.

(d) Visceral Stimulation.

Discomfort in its purest form is produced by stimulation of the viscera, and we therefore compared the condition of testicular sensibility on the two sides in patients who showed this over-response to painful stimuli.

If care is taken not to pinch the scrotum, the characteristic testicular sensation, a sickening discomfort, can be evoked with no other accompaniment than a sensation of not unpleasant pressure. Many patients complained that the discomfort was more intense in the testicle of the affected side. Pressure sufficient to produce "a slight feeling" only on the normal side caused on the affected side a widespread expression of discomfort and brisk cremasteric movements of the opposite testicle.

The glans penis is endowed with a peculiar form of sensibility which differs normally from that of the skin in the absence of the more discriminative faculties (Rivers and Head). Heat and cold can be distinguished, but the finer grades of temperature are not appreciated. A prick causes a more widely spread sensation and is more unpleasant than over the rest of the normal skin. In fact, the glans penis is an organ endowed chiefly with the more affective elements of cutaneous sensibility, and it is therefore a peculiarly appropriate field for examination in cases which exhibit the over-reaction on the abnormal side.

When the glans is pricked with such an instrument as the algesimeter the same strength of stimulus may be necessary to evoke pain on the two halves of the organ; but the discomfort described by the patient and obvious from his expression is greater on the abnormal than on the normal portion.

(e) Scraping, Roughness.

All the stimuli considered so far contain for the normal person some obvious element of pain or discomfort. But in these cases of over-reaction on the affected side scraping the palm or the sole of the foot, moving a rough object over the skin or even rubbing the hairs may evoke an unpleasant sensation, unlike that from the normal half of the body.

The difference between the two sides is, as a rule, most evident when the observer gently scrapes with his fingers the patient's palm. Under normal conditions this is not unpleasant; but on the affected side the patient cries out and attempts to withdraw his hand. His face is contorted with discomfort. One patient complained: "It is a horrid sensation as if my hand were covered with spikes and you were running them in; it is not painful but very unpleasant." Frequently this sensation spreads widely, running up the arm or the leg, and is always started with peculiar ease from the sole of the foot (Roussy [34], Case 1).

This excessive response to scraping is frequently a striking feature during examination with the Graham Brown æsthesiometer. This instrument serves to estimate the appreciation of roughness by measuring the extent of the protrusion of a

tooth from a spherical surface which is necessary in order that it may seem "not smooth." We not uncommonly found that the "raking" sensation produced by this instrument was greatly exaggerated on the affected half of the body. But in no case was the threshold lowered. In some it was equal on the two sides and in others a greater protrusion was required to evoke a sensation, but in the large majority the discomfort produced was greater on the affected side.

Occasionally, even the rubbing of the smooth surface over the affected parts caused an uncomfortable tingling which confused the patient and rendered measurement impossible. In one case the instrument produced no sensation of roughness, but the tingling and discomfort were intense. Many of these patients complained that they could not be shaved on the affected cheek because it seemed as if the razor was "passing over a raw surface." Some objected to having the hair cut on the affected half of the head because of the discomfort, and others complained of the pain caused by the attempt to cut their nails.

Thus in cases where the affected parts react more strongly to painful stimuli it may happen that even scraping with the fingers, the application of rough objects to the skin, shaving, cutting the hair or nails may cause discomfort or produce a more unpleasant sensation than on the normal side.

(f) Tickling.

When the tips of the fingers are gently moved over the palm or the sole, or when the ears and other hair-clad parts are stimulated with cotton-wool, a tickling sensation can be produced in most normal persons. This is not unpleasant, and in some people the movements of withdrawal which result are accompanied by smiles of amusement. But in those cases characterised by an over-response to painful stimuli tickling is usually unpleasant. Several patients insisted that the sensation produced on the normal side was not disagreeable, whilst that from the abnormal parts was quite different and unpleasant. In all such cases the reaction was greater on the affected half of the body.

B.—*The Response to Pleasurable Stimuli.*

So far we have considered over-reaction of the affected half of the body to stimuli which are in themselves unpleasant, or are capable under certain conditions of evoking an unpleasant sensation. We were anxious to discover if sensations normally accompanied by a pleasurable feeling-tone also produced a similar over-reaction.

Unfortunately, the greater number of the methods applicable for the measurement of sensibility either produce discomfort or, like the tests for weight and for posture, evoke an entirely indifferent sensation. But in the milder degrees of heat we possess a measurable stimulus endowed with a pleasant feeling-tone. In the majority of cases, however, which showed an over-reaction to the uncomfortable aspect of a stimulus, sensation was at the same time more or less gravely lost; and this loss was particularly liable to fall upon that portion of the thermal scale which normally yields a sensation of pleasant warmth; in such cases this test is usually inapplicable.

On the other hand, in a few cases when thermal sensibility was abolished warmth applied over a sufficiently large surface evoked a feeling of pleasure. Thus one of our patients found a hot-water bottle pleasant and soothing to the affected foot, but did not recognise that it was warm until he touched it with some normal part. In the same way many patients found the warm hand of the observer unusually pleasant on the abnormal side, although no such manifestations of pleasure were produced when it was applied to normal parts of the body. In one case we were able to show that the patient could not recognise any thermal stimulus as such, and yet over the affected half of the chest large tubes containing water at from 38° C. to 48° C. evoked intense pleasure. This was shown not only by the the expression of her face but by her exclamations, "Oh! that's lovely; it's so soothing, so very pleasant." Temperatures of 50° C. and above, or of 18° C. and below, caused great discomfort exactly as in most of these thalamic cases.

Several of our patients, however, were able to appreciate heat as low as 34° C. on the affected half of the body. Here, whenever the sensation evoked was one of pleasant warmth, the pleasure was obviously greater on the affected side. In one case a tube containing water at 38° C. applied to the normal palm was said to be warm, but the patient cried out with pleasure when it was placed in the affected hand. His face broke into smiles, and he said, "Oh! that's exquisite," or "That's real pleasant." Another patient said, "It seems on both hands, but it is more soothing, more pleasant on the affected palm."

Cold has no pleasurable element—at any rate, during the greater part of the year in this country. As soon as a sensation of cold is produced it is said to be "colder" and "more uncomfortable" on the affected half of the body. The threshold, or point at which a stimulus is said to become cold, generally lies somewhere between 24° C. and 27° C., and as soon as the sensation of coldness is well developed this discomfort begins. So far we have been unable to find any temperature which produces a sensation of pleasurable cold.

Thus, in conclusion, we find that in cases where the pleasurable aspect of heat can be appreciated the pleasure is accentuated on the affected side, yet the threshold for the appreciation of heat is never lowered and may even be raised on the side of the excessive reaction.

C.—*The Behaviour of the Affected Half of the Body in States of Emotion.*

In the preceding sections we have seen that the two halves of the body respond differently to affective stimuli. But no one seems to have recognised that states of emotion may evoke different manifestations on the two sides; not only can pleasant and painful stimuli produce a stronger reaction when applied to the affected parts, but the two halves of the body may behave differently to mental states of pleasure and discomfort.

Music is peculiarly liable to evoke a different reaction on the two halves of the body. One of our patients was unable to go to his place of worship because he "could not stand the hymns on his affected side," and his son noticed that during the singing his father constantly rubbed the affected hand.

Another patient went to a memorial service on the death of King Edward VII. As soon as the choir began to sing a "horrid feeling came on in the affected side, and the leg was screwed up and started to shake." The characteristic so-called choreiform movements were a prominent feature in this case, and whenever the unpleasant sensation was evoked in the affected side these movements were accentuated. The singing of a so-called comic song left her entirely cold, but "A che la morte" produced so violent an effect upon the abnormal half of the body that she was obliged to leave the room. In this case indifferent sounds, such as the note of a tuning-fork or sound of a bell, produced no abnormal effect, and closing the ear of the affected side made no difference to the character or intensity of the response.[1]

A highly educated patient confessed that he had become more amorous since the attack, which had rendered the right half of his body more responsive to pleasant and unpleasant stimuli. "I crave to place my right hand on the soft skin of a woman. It's my right hand that wants the consolation. I seem to crave for sympathy on my right side." Finally he added, "My right hand seems to be more artistic."

Thus, not only does the abnormal half of the body respond more vigorously to the affective element of a stimulus, but an over-reaction can also be evoked by purely mental states. The manifestations of this increased susceptibility to states of pleasure and pain are strictly unilateral and may lead to many curious complications.

3.—THE LOSS OF SENSATION WHICH MAY BE ASSOCIATED WITH LESIONS OF THE OPTIC THALAMUS.

Associated with this over-reaction to painful stimuli, some loss of sensation will always be manifest on the affected half of the body. In some cases the amount of this loss is so insignificant that, as it can be discovered by measurement only, we can imagine the existence of the over-reaction without it. But up to the present time we have not seen a

[1] Occasionally, however, auditory stimuli produce an increased reaction on the affected side exactly in the same way as pain and extremes of temperature. Such a case was described by Merle [22], and we have also seen an instance of this condition. This patient complained that any continuous sound and all noises upset him. When a tuning-fork was held before either ear it evoked obvious discomfort and gradually became intolerable. At the same time the spontaneous movements became extremely violent. It was difficult to be sure that the fork placed before one ear was a more potent cause of discomfort and exaggerated movement in the affected arm than when it was placed before the ear of the opposite side; but after testing him on many occasions, we came to the conclusion that the effect was greater if the sound affected the ear of the abnormal side of the body. There was, however, no doubt that he disliked the sound more in this ear than in the normal one.

patient in whom this excessive response was not accompanied by some sensory loss. It may vary in amount from a diminution so slight that it is scarcely recognisable up to a destruction of all forms of sensibility so severe that only the grossest stimuli can be perceived.

(*a*) *The Appreciation of Posture and Passive Movement.*

With lesions of the optic thalamus and neighbouring parts the appreciation of posture and passive movement suffers more frequently than any other sensory quality. Sometimes the ordinary rough tests reveal no obvious defect, although measurement shows that the recognition of the position of the hand or the power of appreciating passive movement is less accurate on the affected side. In other cases these functions are completely abolished. Between these two extremes all grades of diminished appreciation of posture and of passive movement could be discovered. These two functions were always affected together, except in two cases where the defect in the appreciation of passive movement was slight and lay close to the limits of experimental error.

(*b*) *Tactile Sensibility.*

Here again we find the same extraordinary divergence in the amount of the sensory loss. In five cases the tactile threshold, measured with von Frey's hairs, was identical on the two hands, but in the majority some more or less grave deviation from the normal was discovered on the affected side. Sometimes the affected parts may be entirely insensitive to the tactile hairs, and even considerable pressure may not be appreciated. But frequently the loss of tactile sensibility is much less extreme, and is manifested simply by a raised threshold.

Another difficulty that may prevent the demonstration of a tactile threshold, by means of von Frey's hairs or with graduated pressure, is the occurrence of involuntary movements. Many of these patients show curious irregular movements which may not always be present, but are liable to start when the affected side is stimulated. These movements arising involuntarily may be mistaken under these conditions for touches. The longer the testing is continued the more accentuated these movements become, and all demonstration of a threshold is then impossible.

To sum up, the tactile threshold may be normal on both sides in the cases with which we are now dealing; or it may be raised to a greater or less extent, even up to complete abolition of sensibility to measured tactile stimuli. Accessory sensations, or the misapprehensions of involuntary movements, may confuse the records, but the loss of threshold and irregular response, so characteristic a consequence of cortical disease, is not found as the result of lesions at this level of the nervous system.

(*c*) *Localisation.*

The power of recognising the position of a stimulated spot was more or less grossly affected in 12 out of 24 cases. This faculty may be so profoundly disturbed that a touch on the hand is referred to the same half of the face or trunk. More commonly the patient complains that he has no idea where he has been touched. "I feel you touch me but I can't tell where it is; the touch oozes all through my hand." Although the method we have generally used forces him to recognise that he has been touched somewhere on the hand, the patient frequently gives up all attempts to determine the spot, saying, "I have no idea where you touched me."

Wherever localisation is affected the unpleasant sensation evoked by painful stimuli may spread widely over affected parts. When, for instance, the sole has been pressed with the algometer, the pain may occupy the whole of the leg below the knee, and the patient does not recognise that the instrument was applied to his foot.

(*d*) *Heat and Cold.*

Out of 24 patients who showed signs of a thalamic lesion 22 responded excessively to the unpleasant aspect of heat and cold. In 9 of these cases the threshold for thermal stimuli was the same on the two sides, and but for the over-response sensibility to heat and cold appeared to be normal; the range of discrimination was identical on the two halves of the body. This class is peculiarly interesting, for in them may appear the remarkable over-response to pleasurable heat we have already described.

But not infrequently all appreciation of heat and cold is abolished, and ice and water at over 50° C. evoke nothing but discomfort. This sensation is the same whichever of the two extremes is used; the patient cannot tell the difference and may not recognise the cause of the unpleasant sensation.

Occasionally the insensibility is less profound and temperatures below 26° C. and above about 40° C. may evoke a response from the affected half of the body. But this response may be the same for heat and cold; water above 40° C. and below 26° C. produces the same sensation and may therefore be called indiscriminately hot or cold.

Throughout all these cases, where the loss of thermal sensibility was not absolute, a threshold could always be determined. It might be the same on the two sides, or it might be more or less raised on that half of the body which showed an excessive response. But never did we find that remarkable loss of threshold and inability to discriminate between two temperatures, both of which were recognised to be hot or to be cold, so characteristic a feature with cortical lesions.

(*e*) *The Compass-test.*

In order that this test may be applied the patient must of necessity be able to recognise that he is being touched; tactile sensibility must not be gravely diminished. But many of the patients who reacted excessively to painful stimuli on the abnormal side were so insensitive to touch and pressure that the contact of two points produced no sensation and the compass-test could not be employed.

Another disturbing element in these cases is the widespread unpleasant tingling frequently evoked by a firm touch; this tingling is liable to distract the patient's attention and confuse the records greatly.

Excluding these sources of error, a considerable number of cases still remain in which the power of recognising the "two-ness" of the compass-points was disturbed although each touch evoked a sensation of contact. But by widening the compasses a distance could usually be found at which a perfect series of answers could be obtained, and the records improved each time the distance between the two points was increased. Thus in such cases it is possible to obtain a true threshold.

In conclusion, we have found that the compass-test cannot be applied in many of these cases owing to the gross loss of tactile sensibility or to the confusion produced by the abnormal tingling. But whenever the measured tactile threshold is the same on the two halves of the body the power of discriminating two points will be unaffected; and yet the two faculties are not directly dependent, for two pricks cannot be discriminated more easily than the contact of two blunt points.

(*f*) *The Appreciation of Weight.*

Throughout this research we have adopted three methods of testing the appreciation of weight. A weight is placed in each palm and the patient by moving them up and down "weighs" them and estimates which is the heavier. Secondly, a weight is placed on some part of the fully supported hand, removed, replaced rapidly by another weight of the same size, and the patient chooses the heavier. Lastly, a weight is placed upon the hand and further weights are added or subtracted. The patient replies whenever he recognises that the weight has become heavier or lighter. Now it is obvious that the last two methods depend mainly upon an appreciation of relative pressure, whereas the first demands a power of estimating movement and the force employed in lifting the hands.

At the level of the nervous system with which we are now engaged this difference comes out in a remarkable manner. In some cases the only discoverable loss of sensation consisted in a diminished recognition of posture and passive movement, and correlated with this loss was an inability to distinguish weights placed simultaneously on the unsupported hands; and yet the patient may be able to recognise the relation between two weights, placed one after the other on the affected hand when fully supported. Conversely, any diminution of tactile sensibility at once affects the power of appreciating relative pressures, and so interferes first with the estimation of weights applied consecutively, and later even with the ability to recognise whether an object resting on the palm has become heavier or lighter.

Thus at this level of the nervous system the power of estimating the relation between two weights depends on the integrity of both tactile and postural impulses. The faculty of estimating the relative weight of two objects placed one

in each unsupported hand demands a correct appreciation of posture and movement. But appreciation of two weights placed consecutively on the supported hand, and the power of recognising addition to, or removal from, the weight of an object lying in the palm, require a normal tactile sensibility.

(g) The Appreciation of Size, Shape, and Form in Three Dimensions.

No tests for the recognition of size, shape, or form can be applied unless the patient is able to appreciate the contact of objects placed in his palm. In five of our cases this was impossible owing to gross loss of tactile sensibility, whereas on the contrary in six cases the lesions which produced an over-response to painful stimuli had in no way affected the power of recognising size, shape, or form.

Between these two extremes lies a group in which all three forms of recognition were more or less gravely defective. Although the defective recognition of size, shape, and form, which may accompany the over-response to painful stimuli, appears at first sight to resemble that due to cortical lesions, more careful examination shows that they may differ fundamentally from one another. Ordinary clinical tests employed in the usual rough manner are incapable of demonstrating this difference. But when a series of tests are carefully carried out the patient is able, in most cases, to recognise a difference in size, provided it is sufficiently large; a true difference-threshold can be obtained. He does not give up all attempts to estimate the relative size of the test-objects, saying, as in the case of a cortical lesion, "I have no idea." He may make mistakes in their relative size or may believe that the two objects are equal, but retains an impression that they possess a size to be compared. Ultimately, if the difference between them is made sufficiently great, his answers grow increasingly more accurate.

Unfortunately we have no method of reducing the tests for shape and form to measure in the same way; for increasing the size of objects used for testing shape beyond certain limits prevents their uniform application to the palm, and any considerable reduction makes it impossible to recognise them on the normal hand. Even the size of the objects used as tests for form in three dimensions cannot be varied greatly, since it is necessary that the patient should be able to roll them between his fingers and palm.

In spite of these difficulties the patient usually attempted to give some name to the object, provided tactile sensibility was not greatly impaired, and he could move it to and fro in his hand. Not uncommonly he said, "I have an idea of the shape, but it seems numb." Moreover, in the majority of instances a certain number of right answers were given, especially to the easier tests, such as the circle or the sphere, and the familiar objects commonly used in clinical examination were frequently recognised.

Thus, in conclusion, we find that in these cases the recognition of size, shape, and form may be intact, or more or less gravely affected. In some instances this loss of recognition is due to gross defects in tactile sensibility. But in a considerable group of cases the difference-threshold is raised; here all idea of size, shape, and form is not abolished, as in the cortical cases, but a greater difference than normal is necessary before it can be appreciated. In the same way the patient retains an idea that the objects have a shape and form, but finds difficulty in recognising what it may be.

(h) Vibration.

The loss of sensation must be unusually gross before the vibrations of a tuning-fork cease to be appreciated. In three cases only was the affected half of the body insensitive to this stimulus, and in all of them other forms of sensation were gravely affected.

Usually the vibrations of the tuning fork are appreciated on both halves of the body, but the stimulus appears to last a shorter time on the abnormal side. If the tuning fork is placed upon some point of the affected side and as soon as it can no longer be appreciated is rapidly transferred to a corresponding part on the normal half of the body, the patient will continue to recognise the vibration for a further period, which may even extend to 15 seconds. This shortened appreciation of the tuning fork is one of the most characteristic features of the loss of sensation associated with the over-response to painful stimuli. It occurred in 15 of our cases, and was independent of that unpleasant feeling tone, evoked by vibration, of which we have already spoken. At the same time the patient complains that the vibrations are "not so plain" on the abnormal half of the body and in certain cases the fork seems to be vibrating less rapidly on the affected side.

(i) Roughness.

In three cases only was the loss of sensation sufficiently gross to prevent the appreciation of roughness produced by Graham Brown's æsthesiometer. This instrument with its graduated projection is peculiarly liable to evoke an unpleasant sensation, and occasionally confusion is produced because even the smooth surface of the instrument may evoke a widespread tingling. But in most cases it is easy to show that the threshold for the appreciation of roughness as measured with this instrument is the same on the two halves of the body.

(k) Summary of the Loss of Sensation.

We can now sum up the forms assumed by the loss of sensation which may accompany the over-reaction to affective stimuli in these cases.

No sensory function is so frequently affected as the appreciation of posture and the recognition of passive movement. The amount of this loss varies greatly from a scarcely measurable defect to complete want of recognition of the posture of the limbs on the abnormal half of the body.

Tactile sensibility is frequently diminished; but, excepting in a few cases where all appreciation of contact was destroyed, a threshold could be obtained. It was always possible to show that increasing the strength of the stimulus improved the character of the answers unless the observations were confused by the disagreeable tingling or other accessory sensations.

Localisation of the spot touched was defective in half the cases where sensation was sufficiently preserved to carry out accurate tests. This inability to recognise the site of stimulation was equally great whether the patient was pricked or touched. In cases where localisation was gravely affected, the disagreeable sensation, so easily evoked, tended to spread widely on the abnormal half of the body. A prick on the hand may cause an extremely painful sensation in the cheek or side, and sometimes the patient simply recognised the stimulus as a change within himself, and did not refer the discomfort from which he suffered to the action of any external agent.

Sensibility to heat and cold may show all degrees of change from total loss to a slight increase of the neutral zone. Heat and cold are not dissociated; and if one form of sensation is lost, the other will be gravely disturbed. The apparent exceptions arise from a misinterpretation of the sensation evoked on the affected half of the body by high or low temperatures.

Not infrequently the compass-test cannot be carried out because of the gross loss of sensation and inability to recognise contact; but whenever this method can be applied a threshold can be worked out, and widening the distance between the points increases the accuracy of the answers.

The power of estimating the relation between two weights is frequently disturbed on the abnormal half of the body. If the appreciation of posture and movement is affected, the patient can no longer recognise the identity or the difference of two weights placed in the unsupported hands. But so long as tactile sensibility is not diminished, he can still estimate the relation between weights applied one after the other to the same spot, and can recognise the increase or diminution in weight of an object already resting on the hand.

The appreciation of relative size is often disturbed in these cases, but with care it is usually possible to demonstrate a difference-threshold. Shape and form in three dimensions are frequently not recognisable on the affected hand. But if tactile sensibility is not grossly affected, the patient usually retains an idea that the object possesses a form, and may obtain a considerable percentage of right answers.

Vibration of the tuning fork was recognised by all but three of our patients. In almost every case, however, the length of time during which it was appreciated was shorter, and sometimes the rate of vibration was thought to be slower, on the affected half of the body.

Roughness as tested with Graham Brown's æsthesiometer was always recognised, except in three cases where the loss of all forms of sensation was extremely severe. Usually the threshold was the same on the two sides, but it was occasionally raised on the affected hand.

(To be concluded.)

RUPTURE OF THE UTERUS:
A SERIES OF EIGHT CASES, INCLUDING THREE CASES TREATED SUCCESSFULLY BY OPERATION.

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THE best method of treating cases of rupture of the uterus is still one of the problems of obstetric medicine upon which a good deal of difference of opinion exists; nor, indeed, is it likely that this difference will be entirely overcome, since these cases may vary greatly both in the severity of the symptoms and in the degree of the injury. If we are to be in a position to come to any certain conclusion, it will be necessary for a considerable number of cases to be fully recorded from lying-in hospitals and clinics, so that by a comparison, so far as this can be done, of the results obtained by different modes of treatment under much the same conditions, we may be able to formulate rules to guide us in our treatment of these difficult cases.

I propose in this paper to put on record the cases which have occurred in the extern maternity department of University College Hospital during the 18 years from Jan. 1st, 1894, to Nov. 30th, 1911. During this period 33,781 women have been confined in the department, and among these cases there were eight cases of rupture of the uterus, or a frequency of 1 in 4222.

The details of the cases are shortly as follows.

CASE 1 (Reg. No. 690).—The patient was delivered spontaneously in the extern maternity department on March 27th, 1894, the child being born before the arrival of the student called to the case. She had had five previous normal pregnancies. After delivery she became markedly collapsed, and complained of severe pain in the lower part of the abdomen on the left side. With treatment she recovered to some extent, but died six hours after her confinement, the exact condition not having been diagnosed. At the post-mortem examination an incomplete tear 6 cm. long of the left side of the cervix was found extending into the lower uterine segment, and opening up the base of the broad ligament. The lower end of the tear was situated 1¼ cm. above the edge of the posterior lip of the cervix. The presentation was a vertex, the labour rapid and apparently quite normal, and on this account I concluded wrongly that the case was probably not one of rupture of the uterus. The specimen is in the University College Hospital Medical School Museum, No. 731.

CASE 2 (Reg. No. 1922).—The patient was confined in the extern maternity department on August 25th, 1894. She had had six children, all delivered with great difficulty with forceps. The true conjugate measured 3¼ inches. The child, weighing 8 lb. 10 oz., was delivered by the craniotractor after perforation, forceps having failed. On examination a tear in the right side of the cervix, passing into the right broad ligament, was found. The patient's condition did not admit of any operative treatment, and she died ten hours after delivery. (University College Hospital Medical School Museum, specimen No. 726.) The case is fully reported in the Transactions of the Obstetrical Society of London, Vol. XXXVI., p. 316, 1894.

CASE 3.—This case, under the care of Dr. Herbert Spencer, has been reported by him in the Transactions of the Obstetrical Society of London, Vol. XLII., p. 18, 1900. The patient, a multipara with a contracted pelvis, the conjugata vera measuring 3½ inches, was delivered by podalic version, on account of a shoulder presentation, on Oct. 29th, 1896. The child was delivered alive, but after delivery the patient became greatly collapsed and bled freely, and after removing the placenta a tear was found extending into the broad ligament. No communication with the peritoneal cavity could be found. The cavity in the broad ligament was plugged with iodoform gauze, and the woman made an excellent recovery.

CASE 4 (Reg. No. 250).—The patient, a six-para, was delivered in the extern maternity department on Feb. 3rd, 1897. The left shoulder was presenting, and the arm was outside the vulva. The child was easily delivered by internal version by the obstetric assistant. The patient became markedly collapsed immediately after delivery, and vaginal examination revealed an extensive tear of the left side of the cervix and lower uterine segment extending into the peritoneal cavity. An attempt was made to plug the tear with iodoform gauze, but the patient died 45 minutes after delivery. (University College Hospital Medical School Museum, specimen No. 734.)

CASE 5 (Reg. No. 1352).—The patient, aged 32, was admitted to University College Hospital on July 3rd, 1904. She was a very fat woman with a pendulous abdomen, and was delivered by forceps of a stillborn child weighing 13½ lb. The shoulders and trunk were extracted with considerable difficulty. On examination after delivery it was found that there was a large tear in the lower uterine segment and in the vagina, on the left side, opening into the peritoneal cavity. The tear and the vagina were plugged with iodoform gauze under an anæsthetic and saline transfusion was carried out, but the patient died six hours later. (University College Hospital Medical School Museum, specimen No. 722.)

The three following cases were treated by operation and recovered, and they are therefore recorded in greater detail.

CASE 6 (Reg. No. 247).—*Complete rupture of the uterus, following delivery by traction on the foot in a case of placenta prævia, at the fifth month of pregnancy; suture of the tear; recovery.*—The patient, aged 40, a multipara, was admitted into University College Hospital on Jan. 26th, 1911. She had had three children. At the first confinement a part of the placenta was retained and had to be removed manually. After the second child she was laid up in bed for three weeks, and at her third confinement she sustained a bad tear of the perineum and rectum. Her last period had occurred at the beginning of September. About the middle of December the patient began to bleed, and this continued almost every day until three weeks before admission to the hospital. Since this date she had been confined to bed with continuous hæmorrhage.

On admission to the ward the patient's general condition was good; some vaginal hæmorrhage, however, was going on. The uterus was the size of the organ at the twentieth week of pregnancy, tense, and somewhat cystic to the feel on palpation. No fœtal parts could be felt and no fœtal heart sounds heard.

As the hæmorrhage continued and the cervical canal admitted two fingers, the provisional diagnosis of a placenta prævia having been made, a sound was passed and the membranes were ruptured at 2 P.M. on Jan. 26th. Slight bleeding continued, but only very slow progress was made in the dilatation of the cervix. At 8.45 P.M. on the 27th the cervix admitted 2½ fingers, and a small foot could be felt presenting. The placenta could be readily felt on the anterior wall of the uterus reaching to the internal os. Chloroform was administered, the other foot was brought down by the obstetric assistant, and the fœtus was readily extracted with some traction. During this procedure, however, the cervix was apparently badly torn, and severe hæmorrhage followed the delivery of the fœtus. As this could not be controlled by massage of the uterus the assistant introduced his hand into the uterus to extract the placenta, and apparently during this manœuvre the tear in the cervix was prolonged into the lower uterine segment, and the peritoneal cavity was opened up. A gauze plug was packed into the tear, and I was sent for.

When I saw the patient at 9.20 P.M. her general condition was good. There was some hæmorrhage going on from the vagina, and on examination a tear was found in the posterior lip of the cervix on the right side involving the lower uterine segment, with an opening into the peritoneal cavity through the lateral portion of the pouch of Douglas, readily admitting four fingers. The torn lips of the cervix were drawn down with vulsella, after the peritoneal cavity had been swabbed out, and the edges of the tear were approximated with three thick catgut sutures passed from above down. A plug of iodoform gauze was then placed in Douglas's pouch below the tear in the uterus, and the vagina was also plugged with iodoform gauze. The vaginal plug was removed 20 hours later and the plug in the peritoneum on the morning of the third day. At this time a small plug was placed between the lips of the opening in Douglas's pouch, and this was finally removed on the seventh day.

For the first four days after the operation the temperature was slightly raised, the highest point reached being 101·4° F. The patient made an uninterrupted recovery, and left the hospital with the wounds soundly healed on the seventeenth day.

CASE 7 (Reg. No. 1105). *Complete rupture of the uterus following an attempt at the performance of version for a transverse presentation; Cæsarean section followed by total hysterectomy; recovery.*—The patient, 38 years of age, was admitted into University College Hospital on April 6th, 1911. She had had six children and no miscarriages. All the labours had been normal, except that with the second child the shoulder presented. The last period had occurred at the end of July, 1910. Labour pains started at 4 A.M. on April 5th, at about the thirty-sixth week of pregnancy, and the membranes ruptured at 10 A.M. on the 6th.

When the patient was seen by the obstetric assistant at her own home he found that the right arm and the pulseless cord were prolapsed into the vagina. Uterine contractions were present, but feeble. The mother's pulse was 80. The cervical canal was dilated to the size of a crown piece, and an attempt was made by the obstetric assistant to replace the arm and cord with a view of performing, if possible, bipolar version. On attempting to replace the arm there was suddenly a smart hæmorrhage, and the operation was accordingly abandoned. On a further examination a tear was found in the anterior and lateral fornix large enough to admit the whole hand into the peritoneal cavity.

The patient was admitted into the hospital from the extern maternity department about 2.30 P.M., a large iodoform gauze plug having been inserted into the tear. On examination the right arm of the child was found to be prolapsed into the vagina with the cord, the child lying with its back posterior, and the head in the right iliac fossa. The patient's condition was now very grave, and she was practically pulseless, blue, and cold. The tear was found to be situated in the utero-vesical pouch mainly to the left of the middle line. The uterus was not tetanically contracted. Although the child was obviously a small one, I felt that any attempt to deliver by version would certainly increase the extent of the tear, and it was therefore decided to perform abdominal section. Two pints of normal saline solution were transfused into the left median basilic vein, and the abdomen was prepared with iodine.

On opening the peritoneal cavity a considerable quantity of free blood was found. The tear in the anterior fornix was complete, involved the cervix to a slight extent to the left of the middle line, and the child's left shoulder was seen presenting in the tear. The left broad ligament was almost entirely torn through, so that the left Fallopian tube was seen passing in an arch-like manner to the left side of the pelvis. The peritoneum was cracked in several places on the anterior surface of the uterus to the right of the middle line, and hæmorrhage had occured under the peritoneum.

The uterus was rapidly incised by enlarging the tear in the anterior wall of the cervix upwards to a sufficient extent and the child and placenta were extracted. The broad ligaments were clamped, leaving the right ovary and removing the left. The tear in the utero-vesical pouch of peritoneum was continued round to either side with scissors, the uterine arteries were clamped, and the uterus was removed by cutting across the posterior vaginal wall. The clamps were replaced by silk ligatures. There was very little hæmorrhage during the operation. The vesical flap of peritoneum was sewn to the rectum over a plug of iodoform gauze brought out through the vagina, and the abdomen was closed with through-and-through silkworm gut sutures, with interrupted silk mattress sutures for the fascia, and continuous horse-hair suture for the skin.

The operation lasted 40 minutes. Two or three pints of saline solution were left in the abdomen at the end of the operation. A

hypodermic injection of 10 minims of pituitary extract was administered. The patient's condition at the end of the operation was very good, the pulse about 80, and of fair volume. The fœtus was a small macerated child weighing 2lb. 10 oz.

Three hours after the operation the patient was put up in Fowler's position, and except for a little bronchitis she made a rapid recovery and left the hospital quite well on the twenty-eighth day. The vaginal plug was loosened a little each day, and it was finally removed under gas on the fifth day. The temperature remained slightly elevated for the first ten days after the operation, the highest point reached being 101·2° F., whilst the pulse never exceeded 100 per minute. (University College Hospital Medical School Museum, specimen No. 735a.)

CASE 8 (Reg. No. 1116). *Complete rupture of uterus at full term; cephalic presentation; delivery by version; total abdominal hysterectomy; recovery.*—The patient, 34 years of age, was admitted into University College Hospital on April 8th, 1911. She had had three children in two confinements, and on each occasion the labour was normal. She was seen at 2 P.M. on the 7th by the obstetric assistant on duty in the Extern Maternity District on account of a prolonged second stage. Labour had commenced at 9 P.M. on the 6th, and when seen the cervix was fully dilated. The head was in the pelvic cavity, and an attempt was made to apply the forceps. On the introduction of the lower blade, however, the head appeared to recede out of reach above the pelvic brim and severe vaginal hæmorrhage occurred. On further examination a hand was found to be presenting, and what was thought to be the edge of the placenta was felt; there had been a considerable amount of hæmorrhage during the first stage. A foot was brought down and the child was delivered stillborn at 4 P.M. with some little trouble, the arms becoming extended. No undue force appears to have been used in introducing the blade of the forceps, and no undue difficulty was experienced in bringing down the leg. No contraction of the pelvis was present. The placenta was expressed 20 minutes after the delivery of the child.

The patient complained of severe abdominal pain with the onset of the severe hæmorrhage soon after the head receded. The possibility of a rupture of the uterus having occurred was not realised, and when the woman was seen by the obstetric registrar next day at 11 A.M. she was found to be collapsed and dyspnœic, with blue lips, and gave a history of having bled fairly freely all night. The pulse was very small, 124, and the abdomen was distended and very tender. She had vomited several times, and the bowels had not acted. On vaginal examination a tear could be felt passing into the peritoneal cavity. The patient was at once brought up to the hospital in a cab.

On admission at 12 noon on April 8th on pelvic examination I found a large tear in the left postero-lateral vaginal fornix and the cervix, through which the hand could be passed into the peritoneal cavity; a catheter was passed and 8 ounces of clear urine were drawn off. The uterus, well contracted, lay to the right of the middle line. The patient was put to bed for a couple of hours to recover from the shock of moving her to the hospital.

At 2 P.M. abdominal section was performed, the abdomen being prepared with iodine, a simultaneous transfusion of 1½ pints of normal saline solution into the left median basilic vein being carried out. A hypodermic injection of digalen (6 minims), pituitary extract (15 minims), and ernutine (10 minims) was also administered. On opening the peritoneal cavity the intestines were found considerably distended and injected, the serous coat was dull and covered in places by patches of lymph; no pus, however, was present. There was a good deal of free blood in the peritoneal cavity, and the tear was found to extend through the cervix and the lower uterine segment, tearing through the left broad ligament into the peritoneum. A large hæmatoma was present in the cellular tissue on the left side.

The remains of the left and the right broad ligaments were clamped internal to the ovaries, and the bladder was turned down. The uterine arteries were then clamped, and the whole uterus was removed, the vessels being subsequently tied with silk ligatures. The peritoneal cavity was swabbed out, and an iodoform gauze plug was passed from the peritoneal cavity into the vagina, and another was brought out from the stump of the vagina through the lower angle of the abdominal wound. The abdomen was closed with through-and-through silkworm gut sutures, silkworm gut mattress sutures for the fascia, and a continuous horse-hair suture for the skin.

The operation lasted 35 minutes. The condition of the patient improved somewhat under the anæsthetic, the pulse at the conclusion being of fair volume and 136 per minute. The operation was rendered difficult by the distended condition of the intestines.

On the patient's return to the ward she was placed in Fowler's position. During the afternoon and evening there was very frequent vomiting. At 11 P.M the pulse was very weak, and she was complaining of severe spasmodic pain in the upper part of the abdomen, which was very tender and distended. A hypodermic injection of pituitary extract (15 minims) every eight hours, strychnine (5 minims), and digalen (6 minims) every four hours, and eserine salicylate (4 minims) every six hours, was ordered. One grain of calomel and 1 grain of elaterine were given by the mouth.

During the next day (April 9th) the vomiting was almost continuous and the abdomen was more distended. At midday a soap-and-water enema was given, and flatus was passed with some liquid fæces. The pulse was now 145 and very small. During the afternoon continuous rectal injections of saline solution and glucose were given, about two pints being retained. After this very severe paroxysmal pain was complained of, coming on every two or three minutes and lasting about the same time, and the patient became very restless. The digalen was now stopped owing to the vomiting.

At 5 P.M. the pain was so severe that the woman was shouting in agony. The pulse was 165 and very small. An intravenous infusion was started, and about half a pint had been run in slowly when the patient became collapsed and the pulse at the wrist failed altogether. The infusion was stopped and 10 minims of adrenalin chloride were given intravenously. The pulse gradually returned, as did the pain so severely that a hypodermic injection of heroin (5 minims) had to be given. At 7 P.M a large liquid motion was passed, the pain became less severe, and the patient more comfortable.

The continuous rectal injection was continued for 3½ hours during the night, and by next morning the condition had much improved. The vomiting ceased, and from this time the pulse-rate became progressively slower and better in quality, and the woman gradually recovered. For some days the bowels were very loose, and the temperature remained elevated for 24 days, varying between 99° and 101·8° F.

The plugs were removed under gas on the fifth day, and the patient left the hospital quite well on the thirty-eighth day after the operation.

The uterus, measuring 18 × 13½ × 11 cm., shows a tear extending for 10 cm. above the anterior lip of the left side, opening into the peritoneum; it does not extend quite to the top of the broad ligament. The cervix is infiltrated with blood, and the posterior lip is much thickened, measuring 3 cm. antero-posteriorly. The wall of the body is also thickened, measuring 5·5 cm. (University College Hospital Medical School Museum, Specimen No. 735.)

Remarks.

These three cases present several points of considerable interest. The first is a good example of traumatic rupture involving the cervix and lower segment, undoubtedly due to the forcible extraction of the fœtus through the partly dilated cervix, and the subsequent enlargement of the tear by the introduction of the hand for the purpose of removing the placenta.

The second case is an example of the same variety of rupture, but due to attempts at the performance of version in what was probably an impacted shoulder presentation, and affecting mainly the vaginal vault, although the left broad ligament was extensively torn as well. Von Winckel maintains that such tears are especially likely to occur in cases of transverse presentation; and no doubt in these cases, owing to the faulty position of the fœtus, there is a liability to marked over-distension of the vaginal fornix, either anterior or posterior.

The etiology of the third case is difficult to explain. On the whole, it appears to be a case of spontaneous rupture due to undue prolongation of the second stage in a multipara. As the head was in the pelvic cavity and the cervix was fully dilated, it is unlikely that the introduction of the forceps played any part in the production of the tear.

Although all three cases were complete tears, they illustrate very varying degrees of severity as regards the symptoms the patients presented. In the first case the general condition of the patient was good, in the second the condition of the patient was very grave, while the third woman appeared to be moribund at the time of the operation. Further than this, there is the interesting contrast that the second patient was still undelivered, while in the case of the third the operation was performed upon a patient who had all the physical signs of commencing peritonitis 24 hours after the time at which the rupture of the uterus probably occurred. The fact that very severe tears of the lower uterine segment may occur in cases of placenta prævia is, of course, well known, but the fact is apt to be overlooked that such tears may be produced at the fourth or fifth month of pregnancy almost as readily as at full term, and often to a degree which seems almost impossible when the consistence even of the head of the fœtus at this period of development is considered.

Of this series of eight cases, in two the tear was incomplete and in six complete. Of the former, one in which the shock alone was treated, the condition remaining unrecognised, died, while the second, Dr. Herbert Spencer's case, recovered after plugging. Of the six cases of complete tears three died and three recovered. Of the fatal cases two were treated by plugging, in one the shock alone was treated, while the three successful cases were all operated upon, one by vaginal suture and two by hysterectomy. The total mortality was 50 per cent. The series of cases is too small to allow of any deductions being drawn, but it illustrates the frequency of this complication of labour—viz., 1 in 4222 confinements—in an extern maternity department among the poor of London, and the cases are fair types of the different varieties of rupture of the uterus.

The problem we have to consider at the present day in regard to the treatment of these cases is concerned mainly with two points—namely, the employment of gauze plugging or drainage per vaginam, so-called conservative treatment, and the performance of abdominal section, with or without removal of the uterus. The particular method of dealing with the uterus after the abdomen is opened is more or less of a detail, and the degree of shock is not likely to be much more increased once the abdomen is opened by suturing the peritoneum over a torn uterus, or by suturing the tear itself, than by the removal of the damaged organ. The real point at issue is, Should we, or should we not, in all complete tears—and for the moment I propose to consider these chiefly—perform an abdominal section, or possibly vaginal hysterectomy, or should we content ourselves with vaginal drainage or plugging?

There are certain conditions in which an abdominal

section is essential—namely, when the child has escaped through the tear into the abdominal cavity, or in most instances where the placenta, after the child has been delivered, is found to have passed through the rent out of the uterine cavity. Even in cases of complete rupture of the uterus, however, the child does not escape into the abdominal cavity so often as might be expected from the statements of some writers. Thus, this did not occur in any one of our cases of complete tear, while in the ten cases recorded by Dr. A. L. Smith[1] the child in two, and the placenta in four, is stated to have been in the peritoneal cavity. Of the three cases recorded by Dr. T. W. Eden,[2] in one the child had escaped from the uterus and in two the placenta. Of Lobenstine's[3] 46 cases of complete rupture the child was in the abdomen in seven instances, or in 13·5 per cent., and the placenta, so far as is stated, in four. The exact position of the placenta is not given in all the cases, but apparently it escapes more frequently from the uterus than does the child.

It is obvious, then, that in the majority of cases of complete rupture of the uterus the child is still in the uterine cavity, and our decision as to the best treatment must be made without the guidance afforded by the presence of the child or placenta in the abdominal cavity. In the greater number of these cases the presence of a tear is only recognised after the child has been delivered, or before it is delivered but while it is still in utero.

The dangers these patients are exposed to are, of course, shock, hæmorrhage, and sepsis. The first is the main cause of death occurring soon after delivery, and in complete tears is usually very severe. Indeed, many patients succumb to shock before it is possible to carry out any treatment at all. This element of profound shock is one of the most important factors, and is the main reason of the heavy mortality which attends the treatment of these cases by abdominal section.

The amount of hæmorrhage that occurs varies very considerably. Of my three cases operated upon, in only one was the hæmorrhage at all severe—namely, in the third case. The danger from hæmorrhage is not only immediate but also remote—that is to say, the shock of the rupture is often greatly aggravated by profuse hæmorrhage occurring at the time, and there is a very great risk, if the hæmorrhage ceases spontaneously, as it sometimes does, that as the shock passes off it will recur and kill the patient.

The exact amount of blood lost is difficult to determine, as the blood escaping externally is usually not measured, and the amount of blood present in the peritoneal cavity or outside the peritoneum is difficult to estimate in the hurry of an abdominal section. The majority of the cases bleed considerably either internally or externally, and no doubt slow oozing of blood often continues, especially into the subperitoneal tissues, after the external hæmorrhage has ceased.

Some writers—Eversmann,[4] for instance—maintain that, as in a large number of the cases, the uterus after the delivery of the child usually contracts and retracts, with a surprising degree of efficiency, the hæmorrhage is arrested by the closure of the vessels in the uterine walls. This contention does not, however, hold good. In the first place, a great deal of the hæmorrhage undoubtedly occurs while the child is still in utero, even when it ultimately escapes into the peritoneal cavity; and in the second place, since the tear in most cases involves the cervix and lower uterine segment, hæmorrhage no doubt continues, as it does in lacerations of the cervix, even although the fundus of the uterus may be well contracted.

An analysis of Lobenstine's 46 cases with regard to this point shows that of 43 in which the information is given, in 30 the hæmorrhage was profuse or severe, and in 13 moderate. Eden suggests that dangerous hæmorrhage occurs in over 40 per cent. of cases of rupture of the uterus; it is, of course, difficult to define what amount of hæmorrhage is dangerous, but probably we are right in saying that the great majority of cases at any rate of complete rupture are accompanied by profuse or severe hæmorrhage. In one of Smith's cases at the post-mortem examination it was estimated that there were between four and five pints of blood present in the peritoneal cavity, while in one of Lobenstine's cases the abdomen is described as being full of blood.

Whatever mode of treatment, then, is adopted, it must be one which will enable us efficiently to arrest the hæmorrhage which may be occurring at the time the patient is seen, and also to guard her from any recurrence of the bleeding later on. The large part played by recurrent hæmorrhage in causing the death of these patients is brought out by Ivanoff's[5] figures, for he has shown, as Eden points out, that the great majority of deaths from hæmorrhage occur not immediately, but within ½ to 12 hours after the rupture—namely, after repeated hæmorrhage or oozing has occurred.

Besides the immediate risk of shock and hæmorrhage and the remote risk of recurrent hæmorrhage these patients all stand a very great chance of succumbing to septic peritonitis or general septic infection, and we are justified in assuming that the main factors in the causation of this risk are the presence of the damaged and possibly infected uterus, and the presence of blood free in the peritoneum or in the cellular tissues.

Any mode of treatment, then, which we may select for dealing with this grave accident of child-bed should fulfil three postulates—viz., it should not increase the shock, it should provide for the arrest of hæmorrhage, both immediate and remote, and it should preserve the patient as far as possible from the risk of dying from septic infection.

Those obstetricians who recommend that cases of rupture of the uterus should, whenever possible, be treated by gauze packing or the provision of free drainage through the vagina, maintain that this method does not increase the shock, that hæmorrhage is prevented by the pressure of the gauze, and that the risk of septic infection is lessened by the provision of drainage through the vagina, and by the avoidance of any great amount of manipulation. Let us now for a moment examine the truth of these three contentions.

The first must be at once conceded; there can be no doubt that gauze packing is the least likely of any procedure to increase the shock.

That gauze plugging in cases of incomplete rupture will probably arrest the hæmorrhage is no doubt true; but it must be borne in mind that in many of these cases the hæmorrhage is not very severe, as, indeed, it is not even in some cases of complete rupture. In a case of complete rupture, however, it requires a very robust faith in the efficacy of gauze plugging as a means of arresting bleeding to enable us to believe that a gauze plug passed into a tear in the uterine wall opening into the peritoneal cavity can have much effect in arresting bleeding by making pressure on the bleeding points. It would be absurd to say that it has no effect of this kind, but that it is a certain means of arresting hæmorrhage, or one that can be relied on in the case of extensive complete tears, is a statement hard to accept. The extreme difficulty of plugging a large tear with gauze was forcibly impressed upon my mind by my experience in Case 4. The results obtained by Lobenstine by this means are exceedingly bad. Thus of his 46 cases 13 were treated by gauze-plugging alone, and of these no less than 12, or 92 per cent., died, figures which appear to eloquently demonstrate the futility of gauze-plugging in cases of complete rupture.

It is, however, quite easy to adduce figures from the literature which present much better results obtained by simple drainage or plugging, so-called conservative treatment. Thus, Eversmann collected 360 cases. Of these, 129 were treated by laparotomy, with 66 recoveries, or 59 per cent., while 78 were treated by drainage or tampons with 49 recoveries, or 63 per cent. Again, of 217 cases collected by Klein[6] 155 of the cases of complete rupture were treated by laparotomy, of whom 68 recovered, or 62 per cent., while 30 were treated conservatively, with 22 recoveries, or 73 per cent. These figures, however, refer to cases published by a large number of different observers and are therefore not of great value.

In view of the fact that different writers quote figures supporting both methods of treatment, in endeavouring to form a correct conclusion we must not rely too much upon statistics unless they include a sufficiently large series of

[1] A. Lionel Smith: Journal of Obstetrics and Gynæcology of the British Empire, vol. xv., No. 6, p. 382, 1909.
[2] T. W. Eden: Ibid., p. 363.
[3] R. W. Lobenstine: Bulletin of New York Lying-in Hospital, vol. vi., No. 2, p. 31, 1909.
[4] J. Eversmann: Archiv für Gynäkologie, vol. lxxvi., p. 601, 1905.
[5] Ivanoff: Annales de Gynécologie et d'Obstétrique, p. 459, August, 1904.
[6] H. Klein: Inaugural Dissertation, Bonn, 1904.

cases. For this reason the figures given by Petrén [7] are of considerable importance, as he has collected a series of no less than 754 cases. Analysing these figures, he finds that, of the whole, 501 were treated conservatively. These include all cases not subjected to laparotomy, and of these 140, or 28 per cent., recovered; while of the 174 cases subjected to laparotomy 82 recovered, or 47 cent., a very striking difference in favour of abdominal section.

If, in spite of these figures, we admit for the moment that gauze plugging fulfils the first two postulates and acts efficiently as a hæmostatic, while it does not increase the shock, how does it fulfil the third demand—namely, the prevention of sepsis?

The mortality from this complication has been estimated to vary between 37 and 74 per cent., and no doubt it accounts for a very large proportion of the later deaths. The best that can be said for gauze plugging is that if properly employed it forms an efficient drain, but that its efficiency as a drain is in inverse proportion to its efficiency as a hæmostatic plug. If, however, the plug is loosened after the first 24 hours, this objection is to a large extent overcome, while if an antiseptic gauze such as iodoform is used the antiseptic properties of the gauze may be of value. The main source of the sepsis, the uterus, however, is not in any way influenced, nor are the raw surfaces from which infection can occur in any way lessened by the use of a plug. On the contrary, they are rather increased in extent by efficient, and therefore tight, plugging.

We are therefore justified, I think, in concluding that while gauze plugging answers one of our postulates fairly well, it fulfils the other two certainly inefficiently, and possibly in many cases very badly.

If now we consider the usual alternative to the use of a gauze plug—namely, abdominal section or vaginal section—we are at once confronted with the difficulty that such a procedure must inevitably tend to markedly increase the degree of shock, which is already almost sufficient in many cases to kill the patient. In view of this great drawback does operative treatment present any counterbalancing advantages? To this question I suggest we may certainly give an affirmative answer.

By abdominal section—and to a lesser degree by vaginal section—we can assure the complete arrest of hæmorrhage, not only immediate but also remote; and if the uterus is removed at the same time the gravest source of danger, as far as infection is concerned, is removed, and the best possible drainage is provided for the peritoneal cavity should it be already infected. In view of these advantages it cannot be denied that if it were not for the profound shock so often present, operative treatment would probably give the best results in all cases. Indeed, judging by the cases which have been recorded of late years, operative treatment—even in spite of the fact that it increases the shock—appears to hold out the best hope for the patient, at any rate in complete tears.

Thus, Schütte [8] records 13 cases treated by operation—2 of incomplete rupture and 11 of complete rupture—with 12 recoveries. Of his series of 19 cases, 5 were hopelessly infected when first seen, and 1 was an old case, in which the child had been some weeks in the peritoneal cavity, which, however, recovered after operation.

Petrén's figures, already quoted, show the same result, and in order to avoid any error from the inclusion of small series of successful cases he has analysed the results obtained in the four large clinics of Berlin, Moscow, Budapest and Bukarest, giving a grand total of 382 cases, and he finds that of these 139, or 36 per cent., recovered—49, or 29 per cent., after conservative treatment, and 76, or 51 per cent., after laparotomy. Of a total series of 192 cases of complete rupture treated by conservative measures in these four clinics, no less than 155 died—a death rate of 81 per cent. He sums up very strongly in favour of laparotomy—at any rate, in all cases of complete rupture.

Lobenstine's figures are also striking, and are the more valuable since they are all from one hospital, and a large majority were treated by operation. Of his 46 cases, as I have already mentioned, 13 were treated by gauze plugging and only 1, or 8 per cent., recovered; 30 were treated by laparotomy, and of these 11, or 35 per cent., recovered; while 3 died undelivered.

Of 19 cases recorded by Munro Kerr,[9] 3 died unoperated upon; of 5 all incomplete tears treated by plugging 4, or 80 per cent., recovered; of 11 all complete tears treated by hysterectomy 5, or 46 per cent., recovered. I cordially agree with Dr. Munro Kerr when he says that panhysterectomy is the soundest treatment, and I would maintain that—while, for cases of incomplete ruptures, gauze plugging or gauze drainage may give very fair results—in all cases of complete rupture laparotomy and removal of the uterus, with gauze drainage of the pelvic cavity, is indicated.

This mode of treatment will undoubtedly entail a very heavy mortality; but if carried out in large numbers of cases the ultimate results will, I believe, surpass those obtained by no treatment at all, or those obtained by the use of gauze plugs if this latter method is employed in cases of complete tears.

On the whole, abdominal section would appear to be preferable to vaginal section, mainly because it enables the abdominal cavity to be more efficiently cleansed from blood and because it will enable the operator to deal more effectively with retroperitoneal hæmatomata—a point laid great stress upon by Schütte. Further than this, abdominal section enables the exact extent of the tear to be accurately defined, and by its employment hæmostasis may be more perfectly attained, and thorough drainage more certainly provided for.

If, then, we are to treat severe cases of complete tears by abdominal section, it is essential that we should take all conceivable means to lessen shock. A considerable number of cases of rupture of the uterus will certainly die from the immediate effects of the accident, but if in all cases that survive for a sufficient length of time immediate steps be taken to combat the shock, and whenever the circumstances permit abdominal section is performed as soon as possible, I believe that even better results will be obtained in the future than have been attained in the past.

For the treatment of the shock the employment of Trendelenburg's position and of warmth, the injection of pituitary extract, and, best of all, if possible, the practice of intravenous ether anæsthesia, are likely to give the best results. The last is a method of anæsthesia which is, in my experience, most useful in all cases of prolonged and severe operations likely to be accompanied by much shock, such as Wertheim's extended hysterectomy for cancer of the uterus, and in these cases of rupture it should prove most useful.

To sum up the treatment, then, of cases of rupture of the uterus as regards conservative treatment or laparotomy, I would say that while in cases of incomplete rupture gauze plugging or vaginal drainage may prove a useful method, in all cases of complete rupture the treatment most likely to give the best results in the future will prove to be abdominal section, followed by the removal of the damaged uterus and the provision of efficient drainage for the peritoneal cavity.

Wimpole-street, W.

[7] Gustaf Petrén: Monatschrift für Geburtshülfe und Gynäkologie, vol. xxix., pp. 299 and 461, 1909.

[8] Chr. Schütte: Monatschrift für Geburtshülfe und Gynaekologie, vol. xxix., p. 842, 1909.

[9] J. M. Munro Kerr: Operative Midwifery, p. 642, 1911.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—A meeting of the General Council of King Edward's Hospital Fund for London was held on Jan. 8th, at the offices of the Fund, 7, Walbrook, E.C. There were present: The Speaker of the House of Commons (in the chair); the Right Hon. Sir T. Vezey Strong, Bart.; the Right Hon. C. Stuart-Wortley, K.C., M.P.; the Right Hon. Sir Savile Crossley, Bart. (honorary secretary); Sir Henry Burdett, Sir Horace Marshall, Sir John Craggs, Dr. Edwin Freshfield, and Mr. John G. Griffiths (honorary secretary). The Speaker announced that the Governors had appointed the Rev. R. F. Horton, D.D., as a member of the General Council in place of the late Rev. J. Guinness Rogers, D.D. The order of appointment, signed by the Governors, of the members of the General Council, members of committees, and officers for the year 1912 was read. The resolutions providing for the work of the Fund for 1912, which were approved at a meeting of the Governors and General Council held at St. James's Palace on Dec. 11th, 1911, were formally adopted.

THE INCIDENCE OF MEDITERRANEAN FEVER IN MALTA AND ITS RELATIONSHIP TO THE SIZE OF THE GOAT POPULATION.

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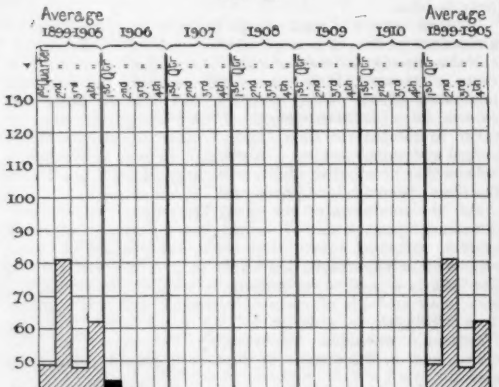
COINCIDENT with the adoption in 1906 of the recommendation of the Mediterranean Fever Commission that the use of milk from the Maltese goat should be prohibited, a striking diminution occurred in the case-incidence of Mediterranean fever upon the naval and military forces stationed at Malta.

The absolute prohibition of goats' milk as an article of diet took effect in the services from the beginning of June, 1906. The average case-incidence of Mediterranean fever in the navy for the first six months of the year is 130, and for the second half of the year 110. The actual case-incidence in 1906 was 89 for the first of these periods (during which attempts at milk sterilisation had been made at the Naval Hospital) and 16 for the second period, or a total of 105 instead of 240 (see Fig. 1). In 1907 12 cases were notified;

FIG. 1.

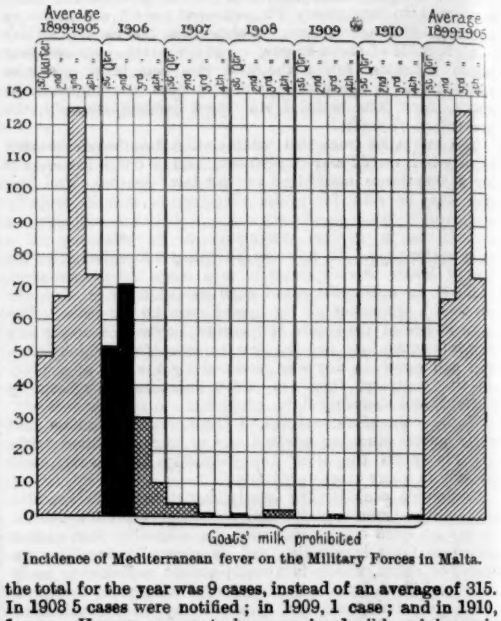


Incidence of Mediterranean fever on the Naval Forces stationed at Malta. Note that the average incidence for each quarter appears at the left of the d'agram and is repeated at the extreme right. The same arrangement has been followed in Figs. 2 and 3.

in 1908, 6 cases; in 1909, 10 cases; and in 1910, 3 cases. So that it would appear that, instead of the navy having to deal with some 240 cases of the disease each year, less than 10 men become infected, a reduction of more than 95 per cent., and a reduction, moreover, which took place abruptly on the discontinuance of the use of an infective food. I suppose that in the circumstances it would be too much to expect that the disease would entirely disappear from the Mediterranean Fleet, since we know that *M. melitensis* septicæmia is endemic throughout the whole of the Mediterranean littoral, and indeed in all those tropical or subtropical countries where the goat is the sole or principal source of the milk-supply; and the bluejacket, although careful enough to avoid milk whilst upon the island of Malta, is by no means equally careful when ashore at other Mediterranean ports. Moreover, some of the cases recorded in the naval statistics occur amongst the native bandsmen and mess attendants employed on warships and have probably resulted from contact with infective material in their own homes whilst on shore leave.

In the army the case-incidence was slightly above the average in the early months of 1906, but it dropped rapidly after the introduction of the prohibition order, so that in the third quarter of 1906 there were only 30 cases, as compared with an average of 125; and in the last quarter there were only 10 cases, against an average of 74 (see Fig. 2). In 1907

FIG. 2.



Incidence of Mediterranean fever on the Military Forces in Malta.

the total for the year was 9 cases, instead of an average of 315. In 1908 5 cases were notified; in 1909, 1 case; and in 1910, 1 case. Here we appear to have an irreducible minimum in a body of troops living in the island in the midst of so much infective material.

This diminution in the case-incidence of Mediterranean fever which took place after the removal of an infective item from the dietary of the sailors and soldiers is regarded by some to be merely *post hoc*, and the evidence adduced by the Mediterranean Fever Commission as to the infectivity of goats' milk, and indeed as to the causal association of *Micrococcus melitensis* with Mediterranean fever, is ignored, derided, or denied. With this type of argument the impartial critic can have but little sympathy, and I do not propose to do more than refer to it. But in certain quarters the assertion has been made, and frequently repeated, that the diminution in the case incidence in the garrison, naval and military, of Malta is merely the result that one would expect to follow upon improved sanitary conditions generally, and is in no way dependent upon, or even associated with, the prohibition of the use of goats' milk—even if such milk is assumed to be infective. The removal of a small portion of the military garrison to modern barracks is instanced as of the first importance. The fallacy of this argument is shown in the following table, giving the age of some of the barracks and the incidence of Mediterranean fever therein for the six

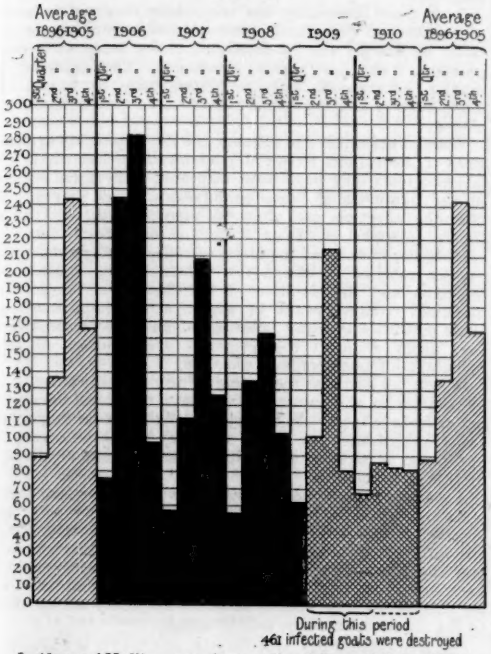
Built.	Barracks.	Case-incidence in 1906.	
		January–June.	July–December.
1903	Floriana.	40	4
1905	St. Andrews.	3	5
1896	Imtarfa.	6	3
Part of ancient fortress.	Lower St. Elmo.	6	2
	Upper St. Elmo and St. James Cavalier.	8	6
1860	St. George's.	5	0
1901	Tigne.	16	9
Ancient.	Ricasoli.	11	1
Various hospitals, all old.	R.A.M.C.	16	2

months before (January–June, 1906) and the six months after (July–December, 1906) the issue of the prohibition order.

Again, improved sanitary conditions can scarcely be urged in support of this contention so far as concerns the navy, for neither the naval hospital at Bighi nor the construction of warships, from the sanitary point of view, has undergone any change in the last five years. In fact, the only sanitary improvement of any importance that has taken place in Malta during the past four years is the reduction in the goat population of the island, a point to which reference is made later.

Finally, consideration of the figures representing the case incidence upon the civil population fully confirms the finding of the Mediterranean Fever Commission (see Fig. 3). The

FIG. 3.



Incidence of Mediterranean fever on the civil population of Malta.

number of cases notified during the first three months of 1906 was slightly lower than the average for the corresponding period. At the commencement of the second quarter of the year the goatherds commenced to get uneasy concerning what they believed to be a libel upon the animals that provided them with a livelihood. Towards the middle of the second quarter they chose to consider themselves affronted by the desire of the Fever Commission and the public health authorities to analyse specimens of the milk offered for sale, and they went on strike (shortly before the issue of the prohibition order), and refused to supply the contract quantities to the naval and military authorities, with the result that a large quantity of highly infective material remained upon their hands.

I have already pointed out that in the ordinary way the Maltese goatherd does not drink the milk from his goats: he simply keeps the goat in order to sell the milk. But now, during this period and the following three months, when he had so much milk on his hands and so little money to purchase other provender, he was compelled to use the food ready to his hand for himself and his family, with the result that 526 cases of the disease were notified during the second and third quarters, instead of an average or 379, and a total for the year of practically 700 cases, as against the average of 632. Naturally, many of the milch goats were sacrificed—in other words, slaughtered and sold. Others, with the incidence of hard times and consequent lack of food, became dry, and in the following year, 1907, 502 cases only were notified for the whole year as against the average of 632. By the following year (1908) many well-to-do Maltese families had taken to heart the advice with regard to goats' milk that the public health department of the island had so constantly reiterated, and were either drinking imported condensed milk, or were boiling the supplies of goats' milk obtained locally, and a further small reduction in case incidence to 456 was noted in 1908, accompanied in accordance with the law of supply and demand by a consequent further reduction in the number of milch goats in the island. By 1909 the public health authorities of Malta had obtained additional powers with regard to the purification of the milk supplies, and from the beginning of the second quarter of 1909 up to the end of March, 1910, no less than 461 milch goats in whose milk the micrococcus melitensis had been detected were bought in by the health authorities and destroyed. The result of the removal of so much infective material from the island becomes apparent in the incidence of the disease during the year 1910 (included in the dotted extension of the bracket in Fig. 3), 318 cases only being notified, as compared with the average of 632. The plea that this reduction in the case of the civil population of Malta is due to improved sanitation cannot apply here. Speaking generally, the sanitation of Malta was as good six or eight years ago as it is now, and the only striking improvement in recent years has been the reduction of the goat population of Malta from *17,110* in 1907 to *7619* in 1910; in other words, the removal of infected goats and the consequent reduction in what I conceive to be the main causative factor in the production of the disease.

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ELECTRIC METALLIC COLLOIDS AND THEIR THERAPEUTICAL APPLICATIONS.

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THE introduction of the metallic colloids into medicine constitutes a new departure in therapeutics the significance of which does not appear as yet to be generally recognised. Under these circumstances a brief review of the physical qualities, physiological properties, and therapeutical effects of these remarkable bodies presents a certain practical interest.

A colloid is usually defined to be a substance that will not pass through an animal membrane, of which gelatin, albumin, and dextrine are typical instances. Until recently, indeed, this was about all that was known of them, although, as the animal organism is wholly composed of colloids, it is only by a thorough knowledge of their interaction that the reactions taking place in the human organism can be understood.

The discovery that it is possible to convert certain metals and metallic salts into the colloid state and the careful study of these metallic colloids, however, show that they are reduced to infinitely small particles, so small as to be visible only by the aid of the ultra-microscope. Some idea of the minuteness of these particles can be gathered from the fact that a cubic millimetre of ordinary colloidal gold is estimated to contain 1,000,000,000 of them, and what would be considered a solution of *fine* particles at least twice that number. These particles or granules are animated by what is known as Brownian movement and are enabled to remain in suspension in a liquid medium almost indefinitely, their stability depending on the size of the granules, the nature of the body and of the vehicle employed. It is interesting to note *en passant* that the number of granules varies according to the cube of their size, so that if their size be reduced to one-half their number is multiplied by eight, a fact of considerable practical importance because the activity of these solutions depends upon the multiplication of these centres of activity.

There are two principal ways of producing metallic colloids—viz., chemical and physical (electrical). The *chemical* preparation of a colloid metal is effected by the slow reduction of a salt of the metal, as, for instance, by

treating nitrate of silver with a mixture of sulphate of iron and citrate of soda. The *physical* method consists in passing the electric arc between electrodes of the metal to be converted into colloid, plunged into distilled water. Under these conditions the electrodes throw off an extremely fine powder which remains suspended in the liquid. The two methods of production yield widely different results, and from a therapeutical point of view I need only deal with the electric colloid metals, since these only present the necessary homogeneity, minuteness of granules, purity, and stability.

A solution of electric colloid silver (small-grained) is of a brownish-red colour (the solution with larger grains has a green tinge). It diffuses light and is vaguely opalescent. For therapeutical purposes it is made stable by modifying the composition of the aqueous medium and is rendered isotonic with blood serum by the addition of sea-salt. Thus prepared for use it is known as electrargol and is one of a series, electraural, electroplatinol, electromercurol, &c., which all appear to possess the same properties in approximately the same degree, a fact which militates in favour of the view that it is the physical state of the substance rather than its nature that determines its effects. These colloid metals, like colloids in general, have a special electric charge, and thanks to their state of fine division they possess a certain catalytic power—that is to say, by their mere presence they can determine very powerful chemical action out of all proportion with the quantity of matter brought to bear. From this point of view the action of colloids resembles that of the ferments.

When colloids are mixed together they form complexes possessing the properties of the bodies originally brought into contact. It is to the affinity of the colloids for each other that we must look for an explanation of the actions of toxins and antitoxins, the phenomena of agglutination, and, indeed, most of the recently elucidated biological phenomena. Since the organism is a complex agglomeration of colloids we have everything to gain by introducing medicinal substances in the colloidal state; indeed, the action of the colloid metals, both locally and constitutionally, testifies to an extraordinary bactericidal, anti-infective energy, both directly and by reinforcing the organic defences.

Therapeutical Applications.

Although of comparatively recent introduction the therapeutical applications of the colloid metals are numerous and interesting; indeed, their employment inaugurates a fresh chapter in therapeutics which is daily being added to.

Speaking generally, the colloidal metals are especially remarkable for their inhibitive action in infective states—septicæmia and pyæmia. This action has been shown to be due to their stimulating influence on phagocytosis and to their destructive effects on micro-organisms and their toxins as shown by the immediate fall of temperature and the subsidence of the constitutional symptoms of intoxication. They are employed as a rule for the sake of their constitutional effects, for which purpose an injection of from 5 to 20 c.c. is made into muscle or, in urgent cases, into the veins. It is worthy of note, however, that in presence of a local infective lesion, such as epididymitis, bubo, mammary abscess, &c., valuable effects are obtained by making one or more injections into the affected tissues or as near thereto as circumstances permit, in addition to the constitutional treatment. Similarly, the colloid products can be injected, in accordance with the indications, into the spinal canal (cerebro-spinal meningitis) and the serous cavities (pleurisy, empyema, &c.) or applied locally to the surface of diseased mucous membranes. Their introduction into the circulation is followed in a few hours by a sharp febrile reaction for which we must be prepared, but which soon gives place to a marked and durable fall of temperature associated with remission of the general and local symptoms. If treatment be postponed until the patient is *in extremis* this reaction may be wanting.

The colloidal metals have been extensively employed in acute inflammatory infections of the lungs (pneumonia and broncho-pneumonia) and pleura (pleurisy and empyema). The injection is followed by a marked change in the opsonic index (positive) and the crisis in pneumonia is notably precipitated. It is indeed in the treatment of inflammatory affections of the lung and pleura (and in puerperal fever, *vide infra*) that the electric colloids have yielded the most brilliant results, as will be seen on reference to the original papers. In addition to the intravenous or intramuscular injections, electrargol has been introduced into the pleural cavity in presence of pleurisy and empyema, apparently with much benefit.

In puerperal septicæmia (puerperal fever) and peritonitis, whether consecutive to labour or as the result of appendicitis, the most remarkable effects follow the intravenous injection of these colloids; indeed, in some instances the patients have been rescued from apparently inevitable death. It is obviously undesirable to postpone intervention until the disease has reached a stage at which the organism has become irresponsive to treatment of any kind. We know that this is the case when the reactional rise of temperature does not take place, and clinical experience shows that patients who fail to react do not as a rule derive benefit from the treatment.

Even more interesting are the results obtained in acute meningitis and in epidemic cerebro-spinal meningitis. In the latter electrargol can be employed either alone or in conjunction with the serum treatment. The injection is usually intravenous, but in severe cases it should be made directly into the spinal canal so as to obtain immediate effects.

Without attempting to exhaust the list of possible applications of the colloid metals, I may mention that within the last two years they have been employed with signal success in the treatment of acute epididymitis. This painful and disabling affection can often be nipped in the bud by a timely injection of 1 or 2 c.c. of electrargol *into the epididymis;* even when the disease is fully developed the pain usually subsides within a few hours of the epididymal injection, and the duration of the disease is thenceforth measured by days instead of weeks. Their employment in acute urethritis is being investigated and it is claimed that they abort or avert the principal complications of this redoubtable though common affection.

It will be seen that the action of the metallic colloids is not limited to any particular variety of microbial infection, but extends to most. In typhoid and typhus fever they exert the same anti-infective action and they have been employed in diseases as far apart as Mediterranean fever and erysipelas, cystitis and tonsillitis.

A glance at the bibliographical notes will show that these remarkable results have not been obtained by any one observer or group of observers, nor in any one country. They are daily being placed on record in medical literature all over the world. In view of their daily increasing field of usefulness it can hardly be doubted that a new and interesting chapter has been opened up in contemporary therapeutics by the introduction of the colloid metals.

One point stands out prominently, and that is the absolute innocuousness of these bodies, whether injected into the veins or muscles or into the spinal canal. Injected into muscle they cause very little local reaction or pain, and the dose is determined solely by the requirements of the case since they are devoid of toxicity. No hesitation need be felt in applying this treatment to children in doses of from 3 to 5 c.c., according to age. It is unnecessary to add that the injections are to be made with the usual antiseptic precautions.

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Paris.

OBSERVATIONS UPON THE TREATMENT OF GONORRHŒAL CONJUNCTIVITIS IN THE ADULT.

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WE have observed, in common with most ophthalmic surgeons who have given attention to this subject, that gonorrhœal conjunctivitis in the adult is in all cases after the age of 30 attended with most disastrous results to the eye. Not only is all useful vision in these unfortunate cases completely lost, but the damaged and shrunken globe not infrequently remains a distressing and unsightly object in the orbit. We believe that this untoward result is not only unnecessary but preventable if the patient is seen early and appropriately treated. The involvement of the cornea constitutes the great danger in this affection.

1. It may slough wholly from strangulation owing to the pressure of the brawny lids and the gelatinous chemotic swelling round its margin.

2. Its epithelium may be readily abraded and a site exposed for the ingress of the terrible gonococcus by even the gentle manipulations of a skilled attendant.

3. The digestive powers of the toxic products contained in the discharge have a most deleterious influence on the vitality of the structures of the cornea.

4. To these must be added what we have come to consider as the almost uniformly pernicious influence of the caustics and astringents applied in the early stages of the disease. We refer more particularly to silver nitrate, protargol, argyrol, and perchloride of mercury. These, by the reaction they cause, lead to greater constriction and chemosis, whilst they merely remove the superficial layers, leaving the deeper structures of the conjunctiva untouched. Moreover, the renewal of these applications is not only distressing and exhausting to the patient, but is attended with positive danger to the cornea. Further, this method of treatment is, even in favourable circumstances, a lengthy one, the conjunctiva being left in an irritable, and occasionally papillomatous, condition for many weeks, while recurring ulcerations of the cornea are much to be feared.

It has always appeared to us that this treatment would be justly condemned if adopted by any modern surgeon in urethral gonorrhœa, and that it is essentially unscientific and unpractical. For some years we have adopted the following method in dealing with these very serious cases and with the most uniformly gratifying results. The early symptoms of this disease may be recognised, or at least strongly suspected, by the practised eye even before a culture has been obtained, though this should never be omitted.

Treatment.

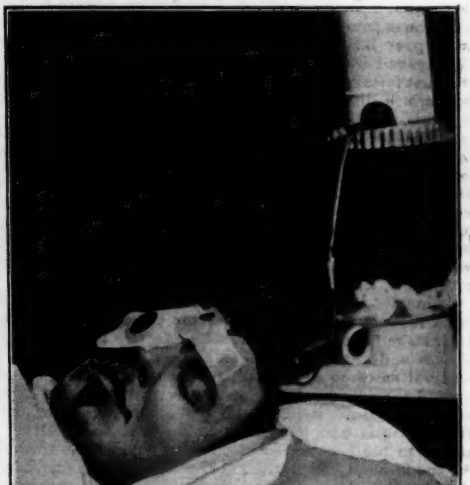
1. The patient should at once be placed in bed and remain there until all danger is passed.

2. A low diet should be prescribed, consisting of milk, barley water, eggs, fish, toast and butter, weak tea, &c., for the first ten days. The bowels should be kept freely open with mercury and saline purges, and aspirin (gr. x. thrice daily) and quinine bisulphate (gr. ii. thrice daily) are probably the best internal remedies to administer in this disease.

Local Treatment.

With regard to this all-important question we have found that the constant use of the douche is the primary curative factor. It may be applied either by a mechanical apparatus fastened to the head or by the hands of a relay of properly instructed nurses. These should sit behind the patient's head and apply the unintermitting stream as the surgeon may direct from time to time. No cessation in the flow is to be permitted for a moment either day or night. The solution which we have found most satisfactory for this purpose is one of permanganate of potash, varying in the early stages from 1 in 15,000 to 1 in 20,000, and in the later stages a solution of boric acid, gr. viii. ad ℥i., may replace this and is all that is necessary. The temperature should be from 85° to 90° F. in the can, where a thermometer is constantly present. We do not use any ointment either within the conjunctival sac or on the surrounding skin, as it tends to interfere with the proper application of the solution. When possible the patient should be encouraged to open his eyes slightly every ten minutes. No manipulation of the lids except by the surgeon should be permitted.

In the arrangement of the douche the can should be placed not higher than one foot above the patient's head. (See figure.) The end of the fine rubber tube leading from it should be either fixed by plaster or held at the naso-orbital margin, and the stream allowed to trickle constantly across the palpebral fissure, which it will be found that there is a tendency for it to do if properly adjusted. If a slight coating forms along the lashes it can be removed readily by a warm solution of sodii bicarb., gr. x. ad ℥i., the lashes being gently stroked downwards. For the first four days, provided that the sequelæ to which we shall refer later do not call for further examination, only the gentlest attempts should be made to



expose and inspect the eye. After this time, as the swelling is in all probability subsiding, the cornea should be carefully examined for minute specks, and signs of iritis or hæmorrhages into the anterior chamber should be looked for. The patient should be encouraged to open the lids himself, the surgeon merely assisting by the gentlest manipulation of the upper lid. It will be observed in the severer cases that the chemosis in itself tends to keep the lids apart, or at least prevents firm closure, and that the portion thus exposed and submitted to the stream of fluid includes that part of the cornea—i.e., the lower limbus—most susceptible to damage from the toxic inflammatory products.

If the disease is diagnosed in the first days and irrigation is at once adopted a surprising improvement will be seen in the course of the next four days, and the surgeon may be tempted to relax the continuous douche. Relapse is, however, much to be feared if the treatment is not continued for the next three or four days. It may be pointed out also that even in the neglected cases, where the patient is seen by a specialist at a dangerously late stage, eight days' continuous irrigation will be found sufficient to bring the case completely under control, provided the cornea is not affected when the surgeon is called in.

Complications and Sequelæ.

Lids.—A malignant form of the disease, where the lids become almost black and show signs of venous stasis and even threatened gangrene. In this condition the outer canthus should be freely incised, and, if necessary, its edges

sewn apart. There is no danger of orbital cellulitis ensuing if the continuous douche is persisted with. These cases are, however, rare if the disease has been early recognised and the irrigation treatment adopted.

Cornea.—If the douche is discontinued at too early a stage we have found that corneal complications are apt to appear as grey spots at the limbus or in the centre of the cornea. A renewal of the irrigation has led to rapid arrest of further trouble. Even if a definite ulcer appeared, which we have not seen under this method of treatment, we should continue to persevere with the douche and not resort to the more heroic measures of the cautery or the silver compounds. A slight vascularity of the upper corneal limbus should not excite apprehension. There is no tendency for ulceration to occur in this situation; it occurs in the centre from devitalisation, or at the lower part from contact of the secretion, or from exposure. We have not found it necessary to make radiating incisions into the chemosed tissue since adopting this method of treatment. The subsidence of the chemosis may be assisted after the tenth day, when the discharge has mostly ceased, by painting the conjunctiva of the lower lid only with gr. ii. ad ℥ i. of silver nitrate or the use of permanganate of zinc drops, gr. 1/8 ad ℥ i. The globe and upper lid should not be touched by these astringents. The eyeball is always tender on the slightest pressure during the first fortnight, and the eye is hypersensitive to light even through the lids. There is, however, but little true tendency to iritis at this stage under this treatment, but it is our practice to instil atropine solution every other day, gr. ii. ad ℥ i., after the eighth day for the general comfort of the patient. We have not found as sequelæ after this method of treatment papillary roughness of the conjunctiva, obliteration of the fornices, &c.—results by no means uncommon after the astringent and caustic methods of treatment usually adopted. Neither have we encountered such terrible results as orbital cellulitis, meningitis, &c.

It must be remembered that however well the eye may have recovered in certain cases the patient may suffer at a later stage from rheumatic troubles affecting the periarticular tissues and serous membranes. These occur chiefly in the urethral cases at about the fourth week, when the patient is up and about and scleritis may supervene at this period and ultimately cause staphylomata. We have, however, never met with this complication after the irrigation method. It points to the importance of carrying out suitable treatment for the urethral complications, to warm clothing and careful dieting, and the avoidance of anything which may expose the patient to cold and damp. Abstention from alcohol and tobacco and a diet consisting chiefly of milk and farinaceous food are indicated until the patient has completely recovered.

In the early stage the patient will naturally suffer somewhat from insomnia, owing to the want of rest which this treatment involves, but this should not prevent the surgeon from persisting with the douche, the issue being so vital. It is most important that the stream should trickle unintermittently and not fall by drops upon the eye, for it is then apt to produce a peculiar mental irritability. Veronal, gr. viii., in tea can be given at night, but a fair amount of rest is really obtained. The light of the room should be subdued, the sound eye protected by a Buller's shield well aerated above and below, which should not be removed unless absolutely necessary. The nurses should wear protecting gloves of indiarubber. All woollen swabs should be destroyed by burning. The fluid is collected by means of towels and mackintoshes, the towels being boiled, dried at the room fire, and used again. The room should be well aired and kept at a temperature of 65° F. The risk of infection to the attendants should be pointed out.

With regard to vaccine-therapy we have not satisfied ourselves of its efficacy, but we believe that the use of antistreptococcic serum by the rectum is of service in the rheumatic complications which may arise.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, LONDON.—The weekly demonstrations and lectures at this hospital have recommenced. These lectures are open free to all medical practitioners. The next lecture will be given on Jan. 18th, at 4 P.M., by Mr. E. M. Corner who will take as his subject Delayed Chloroform Poisoning.

PSYCHOTHERAPY AND GENERAL MEDICINE.

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I.—*Retrospect and Introduction.*

THE principle that mental impressions can influence bodily function has long since met with almost universal acceptance, and has been crystallised from time to time into a great variety of cults which have had their vogue and passed, or at the best survive as more or less local and sporadic fanaticisms. Our profession, with the rest of the world, has admitted the truth of the principle, but furtively or with an air of easy tolerance, as though it had no bearing on the problems set by sickness. The object of this paper is to submit that the profession cannot afford to continue in this attitude of detachment, while the furtiveness of such interest as is shown in the matter becomes readily intelligible upon a brief retrospect. Until the early years of the seventeenth century the science of medicine was the paradise of theorists. Then came the awakening, and during the succeeding centuries men witnessed an almost unceasing flow of important discoveries emanating from exact observations, post-mortem dissections, and the like. It is no wonder that the best minds in the profession were monopolised by strict materialism when they compared its harvest with that of the unchastened theorising which had held sway so long. In consequence the more nebulous regions of medicine, where mind and body meet most intimately, became—or perhaps one should rather say remained—the happy hunting-ground of impostors and charlatans, of Mesmers and Cagliostros; and the evil odour which clung to them when these worthies had come and gone left decent people less than ever inclined to risk their reputations in such doubtful company. So things went on till Braid, in the middle of the last century, took Mesmer's animal magnetism in hand, showed that it had nothing to do with magnetism, and did a great deal to place its manifestations on a scientific footing. Presently Charcot himself was persuaded, took up the practice of hypnotism, and made it temporarily orthodox. Soon, however, the scene of his labours became a by-word for functional manifestations of a degree never seen elsewhere, and the whole business sank again into a disrepute the deeper for its temporary emergence under such distinguished patronage. Yet in spite of the shady and undulating career of the methods by which men have tried formally to employ the mind as a therapeutic path, the fact of its usefulness in suitable cases remained unshaken and has continued to be applied in various ways. One of these is called "psychotherapy," and it is with a variant of this that I propose to deal. Amongst other offspring of the same stock which are still active may be mentioned "Christian Science" and Freud's psycho-analytical method of treating hysteria.

I suppose there are few young practitioners who have not had to puzzle their heads over the paradoxical things seen in the out-patient room: over the efficacy of gentian and rhubarb in the case of A, while in the case of B, whose affection seems identical, the draught shows no virtue of any kind. Being no exception to the rule, these and such discrepancies prompted me to keep my eyes open for help from someone of larger experience; but, whether through ill-luck or because the subject did not appeal to those to whom I looked for guidance, I continued to flounder along by myself until I made the acquaintance, through a book by Professor Dubois, of Berne,[1] of a method of practice called "rational psychotherapy." I knew, of course, that in the large family to which it belonged there had been several notorious members; but being unwilling to condemn them all because some had led so-so lives, and finding in the method much that appealed to me as reasonable, helpful, and explanatory of my difficulties, I began to exercise its precepts as well as I could some five or six years ago. Sufficient time has now elapsed for me to say that it can be invaluable sometimes, and often of considerable assistance.

[1] The Psychic Treatment of Nervous Disorders, American translation, Funk and Wagnalls Co., 1905.

So I imagine it may interest those who have not anticipated me if I give a slight sketch of what rational psychotherapy implies, of its virtues and limitations as they present themselves to me, and of the way to put it into practice. I ought perhaps to say that Dubois is beyond me as regards portions of his theory, especially its metaphysics, and that I have been a good deal less successful than my first reading of the book led me to hope. But I am persuaded that a knowledge of his principles is a great help in dealing with "nervous" people, under which heading may be included the bulk of people who have been out of health for any length of time, whatever they may be when well.

I must premise that no one need expect any success with this method who does not believe, without mental reservation, that a man may be genuinely ill even though he has no inflammation, tumour, fracture, or indeed any pronounced objective loss of physical or mental health. The practitioner must also have or achieve some degree of intuition as to what is at the back of a patient's mind, for the emotional states which underlie neurotic manifestations are often well concealed by the victims of them, whether from fear, or a dislike of being laughed at, or some more complex emotional stimulus, and the penetration of this disguise is a condition of success in treatment. He must have, too, a ready and persuasive tongue, a convincing air of optimism, and unwearying patience. Lastly, he needs a good supply of human kindness, and, most important of all, a capacity to let it appear on the surface; and this last is no easy accomplishment for English reserve.

Theoretically the method is based upon the following propositions. 1. That ideas, through the emotional states to which they give rise, are capable of disordering bodily function. 2. That disorders of function, on their part, are capable of evoking ideas and depressed emotional states which, in obedience to the first proposition, end by disordering function still further. 3. That in so far as a disease is ideogenic it ought to be treated on psychical lines—that is, by discharging the pathogenic idea. 4. That though pathogenic ideas can be discharged by an appeal to the imagination, it is better to discharge them by an appeal to the reason, for the former method tends to confirm imaginative and irrational leanings, while the latter tends to correct them.

These propositions are fundamental, and must therefore be established even at the risk of being tedious.

1. It is well known that a number of functions, partly reflex and partly under ordinary circumstances voluntary, can be inhibited by over-anxiety as to their performance. For instance, everyone is familiar with the difficulty experienced by some people in passing urine in the doctor's presence. Again, I once saw a man enter a room full of undergraduates and, producing a snuff-box, offer to bet half-a-crown that no one present could make himself sneeze within five minutes. The challenge was accepted freely, and a number of people plied themselves liberally with snuff—so liberally that they sneezed immoderately for some time afterwards; yet no one succeeded in performing the feat within the allotted time, anxiety for its accomplishment having inhibited the natural reflex. Conversely, a different form of emotion may have a precisely opposite effect. Thus the curious mixture of expectation, hope, and fear which is prone to attack those about to perform in public—the "needle" of the rowing man, the "stage-fright" of the platform speaker—is marked not only by polyuria but by frequency of micturition out of proportion even with the enlarged volume of urine; while when the emotion is pronounced a "nervous diarrhœa" is common enough during the half hour immediately preceding the trial. These events are evidence of variations in the irritability of the controlling centres at the instance of varying emotions. They will suffice to bear out the statement that emotional states can disorder function, though they could be multiplied without difficulty from the natural history of everyday life.

2. The converse proposition that emotional conditions are influenced by bodily states hardly needs to be laboured, but the proposition calls for some comment. It is a commonplace that a man's temperament in sickness is other, and generally less buoyant, than it is in health. This is not necessarily because the disturbance of function is itself to blame, but because its existence induces a superstructure of depressing emotions—apprehension, self-pity, vexation, and so forth—a superstructure varying interminably with the temperamental endowments of the invalid. Therefore it is that in one man a disturbance of function in itself trivial produces only trivial effects, while in another a disturbance intrinsically no greater than the first evokes a stream of secondary emotional effects of such consequence that they in their turn become capable of disordering function; and thus a reciprocating series is begun which not seldom leads the patient into pronounced and chronic invalidism. A hypothetical example will, perhaps, make this matter clearer than an abstract statement. Two healthy men, A and B, become equally and scandalously drunk one night at a respectable gathering, and both on the following day are paying the penalty in the shape, amongst others, of disordered gastric function. A is equable, phlegmatic, unimaginative. He surrenders himself to the inevitable, laughs off his lapse in good manners, starves himself for a day, and is well again. B is less stable, more sensitive, morbid, if you please. To his physical discomforts are added scruples of conscience, disgust at the way he has compromised his good name in his cups, and a general tendency to be seriously upset about his escapade. He thus passes easily into a pessimistic frame of mind well adapted to introspection and a tender care for the sensations arising from his outraged stomach. By dint of unremitting attention to his tongue and epigastrium he becomes satisfied presently that his rash indulgence has damaged his economy to some purpose, and in the course of five or six weeks is the perfect picture of a "nervous dyspeptic." By this time, of course, he is genuinely ill, for the gloom that oppresses him does not admit of any healthy digestion of food, while his strained attention does not miss a single sensation arising from his alimentary canal. In short, the reciprocating series I have mentioned has him fully in its grip, and his illness, though initiated by a physical disorder, is now far from physical in essence. In order to round off the fable and to point the moral, it may be permitted to invent a not unlikely future for this man. He now consults a doctor. If the latter be one of those who have no eyes or interest for anything but organic lesions, the patient leaves the consulting-room confirmed in his apprehensions. He has, let us say, a dilated stomach. He takes with him a list of forbidden articles of food, together with precise directions as to the eating of the few that are allowed him. He will next be found receiving lavage from a gastric specialist, and with some temporary benefit. Finally, after a series of relapses he may find partial salvation in a proprietary pill or electric belt, or he may visit a surgeon who by dint of gastro-enterostomy (i.e., suggestion), combined with rest and feeding (enforced by the operation), restores him to health until such time as his fancy shall renew its tricks upon him. This may be thought an overdrawn picture, but it is not. I have authentic knowledge of a lady who underwent six major operations for the relief of obscure abdominal symptoms, and was finally cured by a vaccine.

3 and 4. Assuming as self-evident the third proposition that in so far as a disease is ideogenic it should be treated psychically, it is necessary to say a few words concerning the choice of means for this end. Pathogenic ideas can be discharged, if at all, in one of two ways; either by an appeal to the imagination or by an appeal to the reason. The appeal to the imagination is the method of animal magnetism, of hypnotism, and of all forms of bald suggestion. It is pure chicanery (not that it may not be admissible in certain instances), and though its immediate effects are often beneficial *ad hoc* it does nothing to correct the underlying mental state, but rather, one might suspect, confirms it in its imaginative and irrational leanings. Rational psychotherapy, on the other hand, attempts to discharge the pathogenic notion by an appeal to the reason. It argues that pathogenic ideas exercise their harmful effects by virtue of apprehensive self-suggestions and the depressing emotional states produced by them; that these self-suggestions are generally unjustified by the facts, being the product sometimes of false premisses due to ignorance of physiology, or to rash conclusions prompted by alarm. If, therefore, the best is to be done for the patient, not only must the existing harmful idea be dismissed by attempting to explain the genesis of the disorder along rational lines, but the patient must be brought to understand the mechanism which has entrapped him in order that he may be on his guard in future. That is to say, he is not to be considered cured until he has been brought to realise how much his body is at

the mercy of his mind, and how vital it is to his future welfare that he should be more critical in his acceptance and interpretation of his sensations. So the method endeavours to follow out the chain of events which has evoked the harmful notion, to identify the physical basis, if there is one, and to separate it from the superstructure of self-suggestion which is often disproportionately developed, in order that each element may be dealt with on its merits. The former is then attacked by physical means, the latter by explanatory and reassuring conversation.

II.—*Some Definitions and Postulates.*

I now wish to submit a few farther psychological considerations of importance. This may seem a fine description of the string of platitudes which follows, and if I cite them with a solemn air it is not from ignorance that they are platitudes, but because they seem to me to be overmuch forgotten in dealings with sick humanity. But first it is necessary to define the meaning which will be attached to two words of frequent occurrence in the sequel, for they are often vaguely employed in medical literature—viz., "neurotic" and "functional."

A *neurotic person* is here held to signify one who reacts with undue violence to a stimulus of given intensity, and nothing more. This exaggerated responsiveness is inherent in some people, while others who are usually of average balance may be made temporarily neurotic by circumstances. The term does not necessarily connote the lack of judgment which is characteristic of the hysterical person, though the latter is often neurotic; nor has the neurotic constitution in itself any sinister significance (beyond the nuisance of it to its possessor) provided that it be coupled with a critical and judicial mind. But undoubtedly the delicacy of the whole apparatus, which is a cardinal feature of the neurotic habit, does lead to an enhancement of the emotional and imaginative faculties, and the more these are enhanced the more need is there that they should be under the governance of the reason. It is only in so far as this critical control is lacking that the neurotic person tends to become hysterical. I imagine that Shakespeare must have been an example of the best neurotic type, combining in an extraordinary degree emotional and imaginative activity with judgment. Nelson, on the other hand, had far less balance, and academically considered, belongs to the commoner order of genius in which judgment readily goes by the board as soon as the emotions become engaged. It seems to me very important on medical grounds to recognise that the neurotic habit does not necessarily imply defective judgment. For the neurotic constitution cannot be altered unless it has been developed in response to circumstances, but a great deal can be done to call judgment into play so long as capacity for exercising it exists; and this is the basis of the therapeutical bearing of the subject before us.

A *functional disturbance* will be taken to mean a disturbance of function however arising—that is to say, the term will not carry any veiled significance indicative of a neurotic origin for the disturbance. It will simply mean what it says.

To resume. The first of the psychological commonplaces bearing intimately upon psychotherapy is that if we are expecting a sensation we appreciate it to the full when it arrives; while, conversely, in moments of detachment, many a stimulus beats idly upon us which would be considered quite pronounced if we were attentive to it. For example, how trifling a sound will not the ear detect when attention is concentrated for the purpose, and how loud a one may pass entirely unobserved when attention is absorbed in other directions. Similarly in the heat of a game an injury may pass unnoticed which if inflicted in cold blood would constitute a decidedly disagreeable experience. Here, obviously, is a useful counterpoise for the subjective exaltation of the neurotic, if only it can be brought into practice.

Secondly. Minor disturbances of function occurring without known cause are common in the healthy. They must depend upon some trivial disarrangement, chemical perhaps, or what you will, but whatever their cause it is essentially transient and unimportant. For example, there is the spontaneous twitching of an eyelid which most people have experienced, an occasional cramp, a momentary twinge of pain here or there which passes at once or soon and is never explained. The existence of these disturbances is of no intrinsic consequence, but they are evidence that the working of the normal organism is often not perfectly smooth. And when one reflects upon the vagueness of the sensations we receive by way of the sympathetic system it does not stretch imagination to suppose that if one were to translate the twitching of an eyelid into terms of a disturbance of, say, the alimentary canal, the resulting sensation might well be uncomfortable or in its very vagueness even alarming. Further, stimuli capable of producing a response in a normal subject will certainly act with greater effect in a neurotic one, while the latter will be at the mercy of an additional catalogue of stimuli too slight to produce any response at all in a stable subject. Lastly, the emotional consequences of these anomalies may be expected to assume in the neurotic a prominence proportioned to the latter's exaggerated sensibilities; and this, in fact, is constantly the case. These arguments must in the nature of things be somewhat nebulous, but they offer, I think, a reasonable explanation of the apparently causeless symptoms which are met with daily yet come to nothing; and a working hypothesis which will explain to a neurotic patient the bewildering multiplicity of his sensations is essential to the practice of psychotherapy.

Thirdly. Let me note that any considerable mental agitation, even when the emotion is exhilarating, tends to upset function in a good many people; while when the emotion is depressing it will affect unfavourably all but a small minority of ordinary individuals. The after-dinner speaker, unless case-hardened by experience, seldom does much justice to the food he has come to eat, at all events, until he has punished the wine. The billiard-player who is unaccustomed to play for money or in public commonly finds that these unfamiliar adjuncts to a game disorganise his accustomed power of coördinating hand and eye. As to the depressing emotions, I suppose there are few people so stolid as to be able to deal honestly with a meal offered them during the height of the distress occasioned by some overwhelming personal catastrophe; or, to put a milder case, let me suggest that my readers eat with more [illegible] amid pleasant and convivial surroundings tha[illegible] for the solitary discussion of a tough [illegible] cracked plate and a dirty tablecloth[illegible] If the normal and healthy show t[illegible] upon their emotional states it [illegible] neurotic will suffer if he allo[illegible] Psychotherapy must teach him [illegible] urge him to put it into practi[illegible] tions given in the ensuing pa[illegible]

Fourthly. It would be a [illegible] emotion resulting from a give[illegible] is a fixed quantity; for emo[illegible] taneously developed, but are [illegible] cesses; and these, in their ea[illegible] or less controllable. For insta[illegible] "working himself into" a rage or [illegible] we know that if such emotional outb[illegible] at all they must be attacked at or [illegible] "Obsta principiis" is therefore as truly [illegible] victim of florid emotions as it is for the victim of tuberculosis or cancer.

Fifthly. Since it is certain that attention increases appreciation of stimuli, and that a large proportion of neurotic sensations depend upon trifling derangements, it follows that a conscious and cool disregard, exercised by the patient, would be the ideal method for meeting these multifarious anomalies. This, no doubt, is what Christian Science achieves by employing religious exaltation. But if one seeks to urge this view on reasoned grounds, one is likely to be met by the somewhat nettled rejoinder that the patient has already "fought against" his ailment to the utmost of his power. It is on this account most necessary that both doctor and patient should appreciate that "fighting against" subjective manifestations is a wasteful and irrational method of obtaining what can often be managed more easily by other manœuvres. I can best explain what I mean by an example which a good many of my readers can put to the test in their own persons if they have the necessary enthusiasm. Let any determined and inveterate smoker set about to diminish his consumption of tobacco without positively abjuring it. He will then find that with each recurrence of a legitimate opportunity for smoking—according to the bargain he has made with himself—the temptation to exceed the self-prescribed limit recurs anew, and that it really requires a

painful exercise of constancy to abide by his determination. But let him now abjure the drug altogether, dismissing the possibility of using it completely from his mind, and he will find his undertaking an infinitely lighter matter. For in the entire absence of all reinforcement the mental associations built up by long habit become atrophied with surprising quickness, and this without the sense of constantly recurring effort so prominent in the earlier case. This is, of course, the reason why a reformed drunkard requires much more constancy of will to convert himself into a moderate drinker than would suffice to make him a total abstainer. An analogous reasoning may fairly be applied to the victim of mutitudinous, though inherently trifling, symptoms. Fighting against them implies continual effort, continually recurring concentration upon the symptoms, and withal a development of self-pity at the burden of the business, and these together are most unfavourable to success. But if the patient can be roused to a pitch of hardihood which will enable him to take the upper hand and, fortified by the conviction that nothing formidable lurks behind his symptoms, to meet them when they come with a cool, disdainful determination not to bother his head about them, the battle is half won. For the mental placidity thus attained is itself a most potent sedative of the lesser functional derangements, and offers besides a favourable field for the action of such physical remedies as may be thought desirable. This may seem an impracticable ideal, but pains and patience and tact can accomplish much towards it in suitable instances.

Sixthly, and to conclude this part of the subject, it is a blunder to believe, as I long believed, that defective self-control is an element inherent in the neurotic. There is in my opinion no essential connexion whatever between them. For just as some people who pass for normal are self-controlled and some the reverse, so there are some neurotic people who belong to the loudly-lamenting class and some whose morale is of a high order. I mean that they put up uncomplainingly with a degree of mingled bodily and mental distress which, supposing that it could be reproduced in the critics who blame them when they do complain, would make those critics less confident of their superiority. This is a mere assertion and does not admit of proof, since we have no measure for distress. But everybody must know of people who are constantly ailing vaguely [illegible] are reputed to be *malades imaginaires*, yet who under circumstances of stress and anxiety exhibit fortitude, self-[illegible]fice, and endurance which anyone might be proud of; [illegible]t is not likely that those who can make little of grave [illegible]tive troubles will yield without a struggle to trifling [illegible]ective ones, as on a superficial view they are often [illegible]ected of doing. The truth, I believe, is that people of [illegible] kind have often been pretty heavily taxed before they [illegible]mplain at all, and that the reception accorded to their [illegible]omplaints, coupled with the fact that there is so little to show for them, does not make the troubles any easier to put up with. The material point emerging from all this is that in a great many neurotic people who come for treatment of a physical symptom, that symptom is not, as it is made to appear, the first and paramount evidence of ill-health, but is, in fact, a late and chance product of those interactions between functional disturbance and emotional reply to which attention has been drawn already. But the patient will of his own motion say nothing of his antecedent discomforts and apprehensions. It is likely enough that he has hailed his definite physical symptom with delight as offering at last some tangible explanation of the preliminary phase. But unless the doctor can detect and penetrate the disguise in which the timidity or secretiveness of the patient has enveloped the truth, though he may effect a temporary cure by vanquishing constipation or anchoring a kidney, or stitching up a prolapsed uterus, his triumph is in danger of being shortlived.

III.—*Outlines of Practice.*

In the hope that I have taken my readers with me as regards the foregoing facts and presumptions, I will now try to indicate the types of malady favourable to the application of the precepts inculcated. The position can be stated quite simply in general terms. There is only one measure of the suitability of an illness for treatment with the aid of psychotherapy, and that is the measure of its emotional and ideogenic ingredients, provided always that rational faculty is not seriously in abeyance. There is practically no place for it in urgent and acute physical illnesses, nor in the graver developments of chronic ones; for in proportion as physical disturbances are profound, emotional ones tend to sink into insignificance. Nor can it be employed, I imagine, for developed psychoses, since an appeal to the reason is the essence of the practice. But of such psychoses I have no experience. On the other hand, it is applicable, in a greater or less degree, to a large assortment of chronic maladies of little urgency, however recalcitrant they be to treatment; to neurasthenic states, especially chronic ones; to the milder types of hysteria, and to a great variety of physical symptoms masquerading as physical diseases in the fashion I have described. These masking symptoms may be situated anywhere, and their position gives no guide to their character, but on the whole they appear most often in the guise of stomach symptoms.

The field of operations being so wide as it is, the practitioner must be armed with some means of knowing when he is face to face with a case suitable for psychotherapy. Often enough the emotional element can be detected at once, while at times it is rigorously concealed. There are, however, certain indications which are of assistance in determining it. Those which I have found most useful are the following.

(a) The character of the symptoms.—As is well known, the most constant characteristics of neurotic symptoms are vagueness and multiplicity, alone or together. An account of such symptoms, even when given with the most matter-of-fact air possible, should raise the suspicion that they are in part at least neurotic.

(b) The patient's manner of recounting his symptoms.—A self-contained neurotic patient will often succeed in veiling his character so long as he is on formal terms with his doctor. But with growing intimacy self-control tends to suffer occasional lapses which permit a peep at the real individual. Thus, a man may carry off his first interview with an absolutely impenetrable air of unconcern, yet at a later one may show by some trifling manifestation that he is labouring under an emotion not justified to all appearance by the state of his physical health. For example, his eyes may become momentarily suffused with tears, or he may be betrayed into an occasional superlative foreign to his previously indifferent utterances. Such things throw the strongest doubts upon the genuineness of the careless air, and suggest that whatever else the patient may need, he needs consolation and reassurance.

(c) The state of the knee jerk.—Whenever it is difficult on other grounds to form a judgment of the emotional state of a patient, the knee-jerk is a valuable aid, for this investigation takes him off his guard. Any considerable exaggeration of the knee-jerk, in the absence of other evidence of organic nervous disease, betokens a patient whose nervous irritability is exalted.

It follows, then, that the first step in practice is to attain a sufficient degree of intimacy with the patient to allow of a fairly accurate estimate of his temperamental condition at the time, and of the view he takes of himself. If it appears quite certain at the first interview that the emotional component of the illness is negligible, physical treatment will do all that can be done. If there is a doubt it is best to temporise and wait for further evidence. If, on the other hand, there is good evidence of a large emotional element in the case, the next step is to identify and appraise the physical basis, if it can be found. For just as it is futile to treat with aperients alone a man whose illness really depends upon an undetected fear of cancer in the rectum, though his complaint is of constipation, so it is futile to treat by reassurances alone a man whose multitudinous symptoms are founded upon, and continually reinforced by, an undetected nasal polypus or stone in the kidney. Confident though I am that emotional components bulk very large in the sum total of many diseases which present themselves to view as mainly physical, I am equally confident that in a large proportion of such cases there is an organic basis not to be neglected with impunity. Undoubtedly some functional derangements are purely ideogenic—e.g., hysterical paralyses of the mimetic order; but by comparison with the vast total of symptoms of whose physical cause we are ignorant, these instances are relatively rare. It is true that if there be physical sources for this great collection of symptoms they must be essentially unimportant, since commonly the symptoms are transient and do not develop a physical lesion

the mercy of his mind, and how vital it is to his future welfare that he should be more critical in his acceptance and interpretation of his sensations. So the method endeavours to follow out the chain of events which has evoked the harmful notion, to identify the physical basis, if there is one, and to separate it from the superstructure of self-suggestion which is often disproportionately developed, in order that each element may be dealt with on its merits. The former is then attacked by physical means, the latter by explanatory and reassuring conversation.

II.—*Some Definitions and Postulates.*

I now wish to submit a few further psychological considerations of importance. This may seem a fine description of the string of platitudes which follows, and if I cite them with a solemn air it is not from ignorance that they are platitudes, but because they seem to me to be overmuch forgotten in dealings with sick humanity. But first it is necessary to define the meaning which will be attached to two words of frequent occurrence in the sequel, for they are often vaguely employed in medical literature—viz., "neurotic" and "functional."

A *neurotic person* is here held to signify one who reacts with undue violence to a stimulus of given intensity, and nothing more. This exaggerated responsiveness is inherent in some people, while others who are usually of average balance may be made temporarily neurotic by circumstances. The term does not necessarily connote the lack of judgment which is characteristic of the hysterical person, though the latter is often neurotic; nor has the neurotic constitution in itself any sinister significance (beyond the nuisance of it to its possessor) provided that it be coupled with a critical and judicial mind. But undoubtedly the delicacy of the whole apparatus, which is a cardinal feature of the neurotic habit, does lead to an enhancement of the emotional and imaginative faculties, and the more these are enhanced the more need is there that they should be under the governance of the reason. It is only in so far as this critical control is lacking that the neurotic person tends to become hysterical. I imagine that Shakespeare must have been an example of the best neurotic type, combining in an extraordinary degree emotional and imaginative activity with judgment. Nelson, on the other hand, had far less balance, and academically considered, belongs to the commoner order of genius in which judgment readily goes by the board as soon as the emotions become engaged. It seems to me very important on medical grounds to recognise that the neurotic habit does not necessarily imply defective judgment. For the neurotic constitution cannot be altered unless it has been developed in response to circumstances, but a great deal can be done to call judgment into play so long as capacity for exercising it exists; and this is the basis of the therapeutical bearing of the subject before us.

A *functional disturbance* will be taken to mean a disturbance of function however arising—that is to say, the term will not carry any veiled significance indicative of a neurotic origin for the disturbance. It will simply mean what it says.

To resume. The first of the psychological commonplaces bearing intimately upon psychotherapy is that if we are expecting a sensation we appreciate it to the full when it arrives; while, conversely, in moments of detachment, many a stimulus beats idly upon us which would be considered quite pronounced if we were attentive to it. For example, how trifling a sound will not the ear detect when attention is concentrated for the purpose, and how loud a one may pass entirely unobserved when attention is absorbed in other directions. Similarly in the heat of a game an injury may pass unnoticed which if inflicted in cold blood would constitute a decidedly disagreeable experience. Here, obviously, is a useful counterpoise for the subjective exaltation of the neurotic, if only it can be brought into practice.

Secondly. Minor disturbances of function occurring without known cause are common in the healthy. They must depend upon some trivial disarrangement, chemical perhaps, or what you will, but whatever their cause it is essentially transient and unimportant. For example, there is the spontaneous twitching of an eyelid which most people have experienced, an occasional cramp, a momentary twinge of pain here or there which passes at once or soon and is never explained. The existence of these disturbances is of no intrinsic consequence, but they are evidence that the working of the normal organism is often not perfectly smooth. And when one reflects upon the vagueness of the sensations we receive by way of the sympathetic system it does not stretch imagination to suppose that if one were to translate the twitching of an eyelid into terms of a disturbance of, say, the alimentary canal, the resulting sensation might well be uncomfortable or in its very vagueness even alarming. Further, stimuli capable of producing a response in a normal subject will certainly act with greater effect in a neurotic one, while the latter will be at the mercy of an additional catalogue of stimuli too slight to produce any response at all in a stable subject. Lastly, the emotional consequences of these anomalies may be expected to assume in the neurotic a prominence proportioned to the latter's exaggerated sensibilities; and this, in fact, is constantly the case. These arguments must in the nature of things be somewhat nebulous, but they offer, I think, a reasonable explanation of the apparently causeless symptoms which are met with daily yet come to nothing; and a working hypothesis which will explain to a neurotic patient the bewildering multiplicity of his sensations is essential to the practice of psychotherapy.

Thirdly. Let me note that any considerable mental agitation, even when the emotion is exhilarating, tends to upset function in a good many people; while when the emotion is depressing it will affect unfavourably all but a small minority of ordinary individuals. The after-dinner speaker, unless case-hardened by experience, seldom does much justice to the food he has come to eat, at all events, until he has punished the wine. The billiard-player who is unaccustomed to play for money or in public commonly finds that these unfamiliar adjuncts to a game disorganise his accustomed power of coördinating hand and eye. As to the depressing emotions, I suppose there are few people so stolid as to be able to deal honestly with a meal offered them during the height of the distress occasioned by some overwhelming personal catastrophe; or, to put a milder case, let me suggest that my readers eat with more appetite amid pleasant and convivial surroundings than they can summon for the solitary discussion of a tough steak, served on a thick cracked plate and a dirty tablecloth, in a dingy eating-house. If the normal and healthy show this amount of dependence upon their emotional states it is easy to see how much the neurotic will suffer if he allows his emotions to run riot. Psychotherapy must teach him this piece of physiology and urge him to put it into practice according to the considerations given in the ensuing paragraph.

Fourthly. It would be an error to suppose that the emotion resulting from a given stimulus in a given individual is a fixed quantity; for emotional states are seldom instantaneously developed, but are the product of mental processes; and these, in their early stages at least, are more or less controllable. For instance, we speak of a man "working himself into" a rage or a fright or what not, and we know that if such emotional outbreaks are to be governed at all they must be attacked at or near their inception. "Obsta principiis" is therefore as truly the motto for the victim of florid emotions as it is for the victim of tuberculosis or cancer.

Fifthly. Since it is certain that attention increases appreciation of stimuli, and that a large proportion of neurotic sensations depend upon trifling derangements, it follows that a conscious and cool disregard, exercised by the patient, would be the ideal method for meeting these multifarious anomalies. This, no doubt, is what Christian Science achieves by employing religious exaltation. But if one seeks to urge this view on reasoned grounds, one is likely to be met by the somewhat nettled rejoinder that the patient has already "fought against" his ailment to the utmost of his power. It is on this account most necessary that both doctor and patient should appreciate that "fighting against" subjective manifestations is a wasteful and irrational method of obtaining what can often be managed more easily by other manœuvres. I can best explain what I mean by an example which a good many of my readers can put to the test in their own persons if they have the necessary enthusiasm. Let any determined and inveterate smoker set about to diminish his consumption of tobacco without positively abjuring it. He will then find that with each recurrence of a legitimate opportunity for smoking—according to the bargain he has made with himself—the temptation to exceed the self-prescribed limit recurs anew, and that it really requires a

painful exercise of constancy to abide by his determination. But let him now abjure the drug altogether, dismissing the possibility of using it completely from his mind, and he will find his undertaking an infinitely lighter matter. For in the entire absence of all reinforcement the mental associations built up by long habit become atrophied with surprising quickness, and this without the sense of constantly recurring effort so prominent in the earlier case. This is, of course, the reason why a reformed drunkard requires much more constancy of will to convert himself into a moderate drinker than would suffice to make him a total abstainer. An analogous reasoning may fairly be applied to the victim of mutitudinous, though inherently trifling, symptoms. Fighting against them implies continual effort, continually recurring concentration upon the symptoms, and withal a development of self-pity at the burden of the business, and these together are most unfavourable to success. But if the patient can be roused to a pitch of hardihood which will enable him to take the upper hand and, fortified by the conviction that nothing formidable lurks behind his symptoms, to meet them when they come with a cool, disdainful determination not to bother his head about them, the battle is half won. For the mental placidity thus attained is itself a most potent sedative of the lesser functional derangements, and offers besides a favourable field for the action of such physical remedies as may be thought desirable. This may seem an impracticable ideal, but pains and patience and tact can accomplish much towards it in suitable instances.

Sixthly, and to conclude this part of the subject, it is a blunder to believe, as I long believed, that defective self-control is an element inherent in the neurotic. There is in my opinion no essential connexion whatever between them. For just as some people who pass for normal are self-controlled and some the reverse, so there are some neurotic people who belong to the loudly-lamenting class and some whose morale is of a high order. I mean that they put up uncomplainingly with a degree of mingled bodily and mental distress which, supposing that it could be reproduced in the critics who blame them when they do complain, would make those critics less confident of their superiority. This is a mere assertion and does not admit of proof, since we have no measure for distress. But everybody must know of people who are constantly ailing vaguely and are reputed to be *malades imaginaires*, yet who under circumstances of stress and anxiety exhibit fortitude, self-sacrifice, and endurance which anyone might be proud of; and it is not likely that those who can make little of grave objective troubles will yield without a struggle to trifling subjective ones, as on a superficial view they are often suspected of doing. The truth, I believe, is that people of this kind have often been pretty heavily taxed before they complain at all, and that the reception accorded to their complaints, coupled with the fact that there is so little to show for them, does not make the troubles any easier to put up with. The material point emerging from all this is that in a great many neurotic people who come for treatment of a physical symptom, that symptom is not, as it is made to appear, the first and paramount evidence of ill-health, but is, in fact, a late and chance product of those interactions between functional disturbance and emotional reply to which attention has been drawn already. But the patient will of his own motion say nothing of his antecedent discomforts and apprehensions. It is likely enough that he has hailed his definite physical symptom with delight as offering at last some tangible explanation of the preliminary phase. But unless the doctor can detect and penetrate the disguise in which the timidity or secretiveness of the patient has enveloped the truth, though he may effect a temporary cure by vanquishing constipation or anchoring a kidney, or stitching up a prolapsed uterus, his triumph is in danger of being shortlived.

III.—*Outlines of Practice.*

In the hope that I have taken my readers with me as regards the foregoing facts and presumptions, I will now try to indicate the types of malady favourable to the application of the precepts inculcated. The position can be stated quite simply in general terms. There is only one measure of the suitability of an illness for treatment with the aid of psychotherapy, and that is the measure of its emotional and ideogenic ingredients, provided always that rational faculty is not seriously in abeyance. There is practically no place for it in urgent and acute physical illnesses, nor in the graver developments of chronic ones; for in proportion as physical disturbances are profound, emotional ones tend to sink into insignificance. Nor can it be employed, I imagine, for developed psychoses, since an appeal to the reason is the essence of the practice. But of such psychoses I have no experience. On the other hand, it is applicable, in a greater or less degree, to a large assortment of chronic maladies of little urgency, however recalcitrant they be to treatment; to neurasthenic states, especially chronic ones; to the milder types of hysteria, and to a great variety of physical symptoms masquerading as physical diseases in the fashion I have described. These masking symptoms may be situated anywhere, and their position gives no guide to their character, but on the whole they appear most often in the guise of stomach symptoms.

The field of operations being so wide as it is, the practitioner must be armed with some means of knowing when he is face to face with a case suitable for psychotherapy. Often enough the emotional element can be detected at once, while at times it is rigorously concealed. There are, however, certain indications which are of assistance in determining it. Those which I have found most useful are the following.

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(b) The patient's manner of recounting his symptoms.—A self-contained neurotic patient will often succeed in veiling his character so long as he is on formal terms with his doctor. But with growing intimacy self-control tends to suffer occasional lapses which permit a peep at the real individual. Thus, a man may carry off his first interview with an absolutely impenetrable air of unconcern, yet at a later one may show by some trifling manifestation that he is labouring under an emotion not justified to all appearance by the state of his physical health. For example, his eyes may become momentarily suffused with tears, or he may be betrayed into an occasional superlative foreign to his previously indifferent utterances. Such things throw the strongest doubts upon the genuineness of the careless air, and suggest that whatever else the patient may need, he needs consolation and reassurance.

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It follows, then, that the first step in practice is to attain a sufficient degree of intimacy with the patient to allow of a fairly accurate estimate of his temperamental condition at the time, and of the view he takes of himself. If it appears quite certain at the first interview that the emotional component of the illness is negligible, physical treatment will do all that can be done. If there is a doubt it is best to temporise and wait for further evidence. If, on the other hand, there is good evidence of a large emotional element in the case, the next step is to identify and appraise the physical basis, if it can be found. For just as it is futile to treat with aperients alone a man whose illness really depends upon an undetected fear of cancer in the rectum, though his complaint is of constipation, so it is futile to treat by reassurances alone a man whose multitudinous symptoms are founded upon, and continually reinforced by, an undetected nasal polypus or stone in the kidney. Confident though I am that emotional components bulk very large in the sum total of many diseases which present themselves to view as mainly physical, I am equally confident that in a large proportion of such cases there is an organic basis not to be neglected with impunity. Undoubtedly some functional derangements are purely ideogenic—e.g., hysterical paralyses of the mimetic order; but by comparison with the vast total of symptoms of whose physical cause we are ignorant, these instances are relatively rare. It is true that if there be physical sources for this great collection of symptoms they must be essentially unimportant, since commonly the symptoms are transient and do not develop a physical lesion

which can be identified. Still this does not prove that a lesion has not existed; and experience of such diseases as disseminated sclerosis warns us that symptoms regarded at their inception as physically baseless (or "functional" in the loose but special meaning of the word) may be shown by subsequent events to have had a sufficiently material foundation. I do not wish to suggest by this example that an ominous significance should be attached to these unassorted symptoms, but merely to urge that the physical aspects of a disease should not be neglected though its emotional component be never so greatly over-developed. To disregard this caution and rely upon psychotherapy alone, unless in most exceptional instances, is to court disappointment and to throw undeserved discredit upon a useful ally. Consider neurasthenia for example. No one, I take it, would deny that there is a pronounced ideogenic factor in most cases within this category; yet it is waste of time to treat neurasthenia by psychotherapy alone, especially when the fatigue-element is prominent. For it is pretty certain, though unproven, that a metabolic fault is at the bottom of neurasthenia, and it stands to reason that this fault cannot be met by arguments. This warning is of particular moment, for there is the same tendency for one interested in the psychical side of physical diseases to overlook organic faults as there is for the pure materialist to overlook emotional ones. Therefore it is an urgent matter that physical examination should be thorough.

Yet even here there is room for the play of judgment, for whereas there are some of these patients who will not be persuaded of their freedom from organic lesions unless after the most protracted and impressive investigations, there are others in whom the intricate procedures required for accurate diagnosis may themselves do harm by adding fuel to self-suggestions. In dealing with patients of the latter stamp it may be better practice to hazard an optimistic view somewhat insecurely based (unless it involves the risk of overlooking some grave but remediable lesion like early carcinoma), rather than to admit, even temporarily, the possibility of serious mischief. There can be no formal rule in such matters, and the physician must be guided by common-sense and intuition in selecting the course most likely to be beneficial to the patient in hand.

Let us suppose, then, that doctor and patient are by now on secure and fairly intimate terms, such terms I mean as have made the patient appreciate that the doctor understands him and is genuinely interested to help him. A frank relation of this sort is quite indispensable, for the sensitive type of patient most likely so be benefited by psychotherapy is precisely the type of patient most ready to take umbrage at any seeming suggestion that his sufferings are not real; and it is not an easy matter to persuade a man that one accepts the reality of a symptom, while at the same time one is proclaiming it in part at least ideogenic. Let us suppose, further, that the physician has satisfied himself of the existence of a large emotional element in the illness, and has set about trying to remedy the physical fault by the ordinary means. The next step is to select the moment suitable for embarking upon the rational explanations by which it is hoped to point out to the patient the path along which he has developed the mind-made factor of his malady, in order that he may be permanently protected, to some extent at all events, from similar tricks of fancy. Much depends upon a wise choice in this respect. For to ask attention for rather complex arguments from neurotic patients reduced by long ill-health to the last pitch of physical and emotional frailty is palpably ridiculous. The first care must be directed towards improving the physical health, if this is at all seriously impaired, by rest, feeding, massage, electricity, exercise, and so throughout the well-known category of good servants in such cases. Yet even during this period it is possible to do a good deal by speech and manner to reassure and encourage the patient, and gradually to restore such a degree of placidity and hopefulness as will afford a footing for the philosophical considerations presently to be employed.

And when the fit moment arrives, early in some cases, late in others, according to the bodily condition, how is the philosophic teaching to be applied? The answer is easily put on paper. It is to be applied by means of conversations based upon the postulates enunciated above, or such of them as seem to fit most accurately the case in point, or any others which the wit of the practitioner can conjure to his aid. The patient must be brought to know these elementary fragments of physiology and psychology, and urged to apply them to his own salvation. He must be tempted to abjure self-pity and ensue stoicism in some cases; in others, to realise the incubus of too ready and unjustified apprehensions; in others again to know that vague sensations are but poor guides for accurate inference. And always the aim must be to cultivate optimism and placidity, and the faculty for criticising and viewing with scepticism the rash conclusions concerning the relations of symptoms and diseases to which such patients are commonly given. I refrain from attempting any detailed description of the steps to be followed in these arguments: partly because there is no royal road for every case, partly because the trifling consolations, platitudes, and confidential exhortations, which will help a sick man who knows one is trying to help him, would be laughable if set down formally. Such readers as I may have kept to this point will know without telling of mine how best to suit their arguments to the changing circumstances. Patients vary greatly in the ease with which they are approached, and some are almost unapproachable. But patience and open friendliness will succeed if success is possible. I ought before concluding to say that the method I have tried to describe is hard to use in the out-patient room, partly on account of the time it takes, partly because publicity drives into their shells the patients most likely to be benefited. So I do not advise anyone to begin his experiments in this direction in the presence of other patients or before a roomful of students. With this I leave the subject, hoping that I have made out a case for treating by psychical means the mind-made factor in physical or pseudo-physical illnesses, the neglect of which factor has long been something of an opprobrium to medicine.

Devonshire-place, W.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

The X Ray Diagnosis of Pulmonary Disease.

A MEETING of this society was held on Jan. 8th, Dr. J. MITCHELL BRUCE, the President, being in the chair.

Dr. G. HARRISON ORTON read a paper on the X Ray Diagnosis of Pulmonary Tuberculosis, in the course of which he said that his object was to try to show how pulmonary tuberculosis even in its very early stages could be demonstrated by the X ray examination, but before going further he insisted on the importance of regarding the examination as an additional aid to diagnosis, a method to be used not in place of, but in conjunction with, every other method at their disposal. As no one other method taken alone was infallible, neither was the Roentgen method, but there were many instances where its employment would enable a definite opinion to be formed in cases which would otherwise have remained doubtful. In utilising the Roentgen method they were bringing into play another, and in most of them the most highly developed, sense—namely, the sense of sight—and it could not but be to their advantage to be able to control with the eye the findings of the hand and the ear. It seemed to be the idea of many that the X ray examination consisted merely of putting a plate upon the chest and making an exposure, but he need scarcely say that that was not the case. A careful screen examination with every detail of technique properly carried out by a skilled observer was of the utmost importance, and that must be followed by the skilled interpretation of a satisfactory negative or negatives. Hasty and perfunctory examinations and imperfect technique had been, and were still, responsible for many errors which tended to bring that method into disrepute. He had not time to describe the appearances seen in all the positions employed, but would consider those seen in the postero-anterior and antero-posterior examinations—i.e., when the screen was placed either on the anterior or posterior surface of the chest. The X ray tube, of course, was on the opposite side of the chest to the screen in both cases. The appearances seen in those two positions were so similar that the same description would apply to both if he pointed out afterwards the slight differences which enabled them to distinguish between the two. What they might call the radioscopic image of the normal chest presented three vertically disposed zones, a median which

was dark and corresponded to the shadows cast by the vertebral column mediastinal contents (including the heart), and the sternum, and two clear lateral zones which were situated on either side of the median and corresponded to the areas occupied by the lungs. They were crossed by the curved shadows of the ribs, and in the upper part by the somewhat denser shadows of the clavicles; they were bounded above by the shadows of the first ribs, laterally by the shadows of the overlapping ribs and lateral walls of the thorax, and below by two dark dome-shaped shadows, which rose and fell with the movements of respiration and corresponded to the diaphragm. When the screen or plate was placed on the anterior surface of the chest the lattice-work effect caused by the crossing of the ribs was a very marked feature, which was almost absent when the screen was on the posterior surface, and that was due to the fact that the anterior portions of the ribs were much less dense than the posterior, dense enough to cast a very distinct shadow when the plate was almost in contact with them, but being very much less distinct when it was at such a distance from them as it must needs be when placed on the posterior surface. The heart being nearer the front than the back of the chest the shadow of that organ was sharper and more distinct when the screen was on the anterior surface. In addition to what they might call those grosser shadows there were to be seen on either side of the median shadow certain somewhat ill-defined shadowy lines, which became less and less evident as they passed from the region of the root of the lung towards the periphery and were more marked on the right side than on the left. He would not weary them with all the explanations which had been put forward to account for those; they were due to the vessels and bronchi radiating from the roots of the lungs, in the main he thought due to vessels which were more likely to cast shadows, being filled with blood, than the bronchi which were filled with air. In addition to those radiating lines there were to be seen also near the root of the lung on either side certain opaque spots and circles, no doubt due to vessels and bronchi seen in cross section. It was important that those should be recognised as normal shadows. Having briefly touched upon the normal appearances, Dr. Orton proceeded to investigate the various departures from the normal which could be made out in pulmonary tuberculosis. Omitting very advanced cases the following were the chief changes, and one or more of them would be found to be more or less marked in all cases: (1) A dimness and failure of one or both apices to brighten on deep inspiration; (2) the movement of the diaphragm was restricted on the affected side or sides, that restriction being as a rule in the lower part of the excursion; (3) the heart in a large majority of early cases was smaller and more vertically placed in the chest than normal; and (4) definite shadows were cast by the diseased portions of the lung.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.

A CLINICAL meeting of this society was held on Dec. 21st, 1911, Mr. J. M. COTTERILL, the President, being in the chair.

Dr. DAWSON TURNER showed a case of Leucoplakia in a man aged 50, and one of a male child, aged 1¾ years, with a Congenital Nævus at the lower part of the left cheek, in both of which the condition disappeared under exposure to radium for 60 mgm. hours and 37½ mgm. hours respectively.

Dr. JOHN EASON showed a case of True Gout in a man, aged 70, who had been a heavy beer-drinker. His father was by occupation a butler. There were numerous gouty deposits of varying size; one over the right olecranon was of the size of a golf ball. The disease began 14 years ago with an attack in the great toe. The deposits were either "shotty" or soft and almost fluctuating, and they were chiefly composed of sodium biurate and organic matter.

Mr. D. P. D. WILKIE showed two cases to illustrate the beneficial effects of salvarsan. 1. A woman nine months after this treatment had been adopted for pronounced tertiary specific lesions. She had contracted syphilis 25 years ago and had been treated in the lock wards of the infirmary for several months for severe secondary lesions, and mercurial treatment had been continued until the present year. For 15 years she had regularly attended as an out-patient for syphilitic psoriasis and leucoplakia. Salvarsan, 0·5 grm., was given intravenously in March, 1911. The psoriasis disappeared in 15 days, but at first the leucoplakia and fissured tongue did not seem to improve. Of late, however, great improvement had resulted. 2. A woman who had suffered from a specific ulcer of the right leg for six years in spite of local and general treatment, and had given birth to still-born children. Salvarsan was administered intravenously, 0·5 grm., in March, 1911. The ulcer healed within four weeks, and in October she gave birth to a healthy child. There had been no recurrence of syphilitic lesions in either case up to the present or after an interval of ten months.

Dr. D. CHALMERS WATSON showed a case of early Rheumatoid Arthritis, in which recovery took place under careful regulation of the diet with daily administration of saline aperients. He thought rheumatoid arthritis should always be cured if taken early in the disease. The source of disease lay in the alimentary, urinary, or genito-urinary tract.

Professor FRANCIS M. CAIRD showed: 1. A male, aged 27, who had suffered from Tropical Abscess of the Liver and Empyema which was incised after resection of the eighth rib and drained, the pus containing the colon bacillus or perhaps that of Mediterranean fever. After draining amœbæ were discovered in great numbers. (He had had dysentery in Burma.) Each night he received 20 grains of chloral hydrate and a little later 15 (subsequently increased to 20) grains of ipecacuanha in pill form. The discharge ceased as if by magic, and though the sinus was still open there was hardly any discharge. 2. A female, aged 32, who all her life had suffered from extroversion of the bladder, in which an epithelioma developed. The neoplasm and mucous membrane of the bladder were removed, entailing division and removal of part of the right ureter, and the stump had to be implanted in the cicatrix. The operation was performed in May and there had been no return of the trouble; but in the right renal region an ascending pyelitis had developed owing to the removal of the valvular action of the lower end of the ureter which had previously prevented the ascent of any infection.

Dr. EDWIN BRAMWELL showed a case of Hysterical Contracture of the Hip in a single woman aged 21. The condition dated from a fall down a flight of stairs two years previously. She had twice been in hospital for the condition and had been ordered to wear a thick-soled boot for "hip-joint" disease. On admission to the Edinburgh Royal Infirmary on Nov. 11th, 1911, there was extreme lateral curvature with tilting of the pelvis upwards and to the left. There was great apparent shortening of the left leg. Examination with the X rays showed no disease of either hip-joint. On Dec. 7th the patient was examined under chloroform, when the deformity completely disappeared under the anæsthetic. The subsequent treatment consisted in isolation and suggestion and rapid recovery had since then taken place. The wearing of the high boot had probably kept up her idea of real disease.

Mr. C. W. CATHCART showed several cases of Fracture to illustrate the good effects of massage and movement in producing satisfactory functional results, although the restoration of the contour of the bones was not perfect.

Mr. GEORGE L. CHIENE showed a girl, aged 7, after wiring for Oblique Fracture of the Shaft of the Left Femur.

Mr. HENRY WADE showed:—1. A case of Right Nephrectomy by the transperitoneal route for acute consecutive suppurative nephritis. The patient, a married woman aged 40, had been sent to the infirmary as a case of acute suppurative appendicitis; but as the frequency of micturition with dysuria had dated from before the onset of the acute symptoms acute suppurative nephritis was diagnosed. 2. Cellulitis of the leg due to an Anthracoid Organism. A man, aged 19, was admitted on Nov. 11th, 1911, with acute cellulitis of the leg (thought to be osteomyelitis). The inflamed area was incised and the tissues were found to be almost necrotic, with no free fluid pus; improvement was very slight. An inflammatory focus which formed on the thigh was incised four days later with similar appearances and similar result. On pathological examination of the fluid obtained at this second operation an organism

identical with the true anthrax organism was found, but clinically the symptoms were not like those of anthrax, and the virulence of the organism was small as compared with the true anthrax organism; it was not toxic to mice. Under Sclavo's serum rapid improvement followed.—The PRESIDENT stated that he had met with an exactly similar case which rapidly recovered after incision merely.

Mr. ALEXANDER MILES showed:—1. A patient whose Fingers had been Amputated on account of being crushed between toothed wheels. The granulating surface had been covered over by making a pocket in the skin of the anterior abdominal wall and fixing the hand there until adhesion had taken place. The lower margin of the skin pocket was divided and a plastic operation had thus been completed. 2. A female patient to illustrate a stage in the restoration of the nose and upper lip due to Syphilitic Ulceration. To support a flap which Mr. Miles intended to take from the forehead, a bony septum had been formed by implanting a slice of bone obtained from the astragalus of another patient on whom arthrodesis of the ankle had been performed.

Mr. J. V. PATERSON showed a case of Arterio-venous Aneurysm of the Orbit in a woman who three weeks previously had fallen down a stair. The lesion was due to a communication between the carotid artery and the cavernous sinus.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Rat-bite Fever.—Splenomegaly.—Pancreatic Cyst.

A MEETING of this section was held on Dec. 15th, 1911, Sir JOHN W. MOORE, the President, being in the chair.

Dr. J. F. O'CARROLL gave an account of a case of Rat-bite Fever. The patient had been bitten by a rat in the lip in March, 1910. After some time the submaxillary glands enlarged, and there were recurrent attacks of remittent pyrexia. Each attack lasted four or five days, with an interval between each of three or four days. A month afterwards the patient developed a very marked nephritis, with an accompanying pleural effusion. By the end of 1910 the patient had so far recovered as to be able to return to heavy work, and has since remained well.

Dr. W. A. WINTER gave an account of a case of Splenomegaly in a man aged 35. His personal and family history were good. Enlargement of the spleen was noticed first in 1905. The patient had had hæmatemesis on several occasions. The blood showed a moderate degree of anæmia, with distinct leucopenia, absence of abnormal forms of leucocytes and of nucleated red corpuscles. The spleen had altered very little in size since 1907. The liver was not enlarged; no jaundice, no ascites. Dr. Winter suggested that the case might eventually show the full picture of Banti's disease. He had advised splenectomy, which was refused by the patient.—The PRESIDENT asked if the liver was cirrhotic. As to the splenic murmur he remembered attention having been called to this before in a case of enlarged spleen.—Dr. T. P. C. KIRKPATRICK said that he had under treatment a boy, aged 8, suffering from Banti's disease. There was a history of his stomach having been trampled upon five weeks previously, and a good deal of blood had been vomited a fortnight afterwards. A very much enlarged spleen and liver were discovered. There was no jaundice. Von Pirquet's reaction was negative on two occasions. Operation was advised to get rid of ascites. Examination of the blood showed a certain amount of anæmia, but no marked departure from the normal in the number or variety of white cells. The child went on well for some time, but then had another severe hæmorrhage, followed by swelling of the abdomen, and he was again admitted to hospital. The blood then showed a reduction of the red cells, with the hæmoglobin considerably reduced. The enlarged spleen was removed, but the child had not done well since, and recovery appeared doubtful. It was his opinion that if good results are to be obtained operation must be done as early as possible.—Dr. W. M. CROFTON said that he had examined the blood in both cases. In Dr. Winter's patient there were a large number of mononuclear cells in the first count, the classification of which would be difficult. The patient at one time suffered from micro-sepsis, and he thought that this might have some bearing on the condition.—Dr. WINTER, in reply, said that the great risk of operation seemed to be the difficulty of controlling the hæmorrhage, which arose through having to turn over the spleen so as to get at the vessels. However, taking everything into consideration, he was very much disposed to recommend operation, and he thought that all the literature on the subject was in conformity with this.

Dr. T. G. MOORHEAD reported a case of Pancreatic Cyst, which was discussed by the PRESIDENT, Dr. CROFTON, Dr. J. A. MATSON, and Mr. F. K. CAHILL.

HARVEIAN SOCIETY.—The annual general meeting of this society was held on Jan. 4th, Mr. J. Ernest Lane, the President, being in the chair. The election of officers for the ensuing year having been proceeded with, the President delivered his address, entitled "Unity in the Medical Profession." Having thanked the members for their kindness to him during his term of office, he briefly referred to the work of the past year, and then began his address by reading an extract from a medical gazette of June 20th, 1835, at which time the St. Albans Memorial was presented to the Poor-law Commissioners with reference to the appointment of medical officers for attendance upon the poor. He then went on to discuss the present Insurance Act, more particularly with reference to the number of patients that every medical man working under the scheme would have to attend and the remuneration for the same. He briefly alluded to the future financial position of voluntary hospitals, and ended by urging upon his listeners the importance of unity of purpose. Mr. Lane then vacated the chair, and Dr. H. J. Macevoy, the new President, was inducted. Subsequently a smoking concert was held. About 50 members and visitors were present.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 21st, 1911, Dr. H. E. Knight, the President, being in the chair.—Dr. Percival J. Hay, in a paper on the Pathology, Diagnosis, and Treatment of Corneal Ulcer, discussed the clinical and pathological characters of serpiginous ulcer and the etiology of the disease. He showed that the age-incidence of the hypopyon ulcer coincided with that of pneumonia in adults, a circumstance which seemed to have escaped notice, and which suggested that after middle life there was a lowering of resistance to the pneumococcus. The statement of certain German authors that the disease was a seasonal one and was favoured by exposure to heat was shown to be based on false premisses and to be only partly true. The seasonal variation found in country towns was absent in manufacturing and mining centres, such as Sheffield and Birmingham, and was due to increased dust and dirt in agricultural occupations during the summer months. Statistics covering more than 1700 cases demonstrated that the visual results were very unsatisfactory. Over 50 per cent. of the cases ended in vision less than 6/60. No treatment could be considered satisfactory that did not secure the average vision of 6/18. In the best series of statistics only 25 per cent. of the patients obtained 6/18. Other statistics showed percentages as low as 10 and 7. By instituting new methods of treatment, in which greater attention was paid to the treatment of the conjunctiva and treatment in the open air, he had obtained vision 6/18 in 40 per cent. of his hypopyon cases. Details of his method of treatment were given, and the paper closed with a discussion of measures of prevention.—Dr. F. H. Waddy, in a paper on Four Cases of German Measles, referred to the confusion in nomenclature of the diseases variously known as rubella, rubeola, and roseola, and quoted Nothnagel's opinion that the disease known as German measles was not entitled to a separate existence, and the later opinion of Griffith that its existence was denied only by those who had not seen it. Dr. Waddy urged that this disease presented sufficient distinctive characteristics, especially peculiarities of the rash, to admit of early diagnosis with as much certainty as in the differentiation of chicken-pox from small-pox. He related his four cases of German measles occurring in one family and presenting a strong resemblance to scarlet fever, differing from it, however, in the period of incubation, the symptoms of invasion, the

nature of the eruption, and the condition of the throat and tongue. None of the patients had ulceration of the throat, but the glands of the neck were swollen. The interval in the eruption between the first case and those succeeding it was 24 days, and between these and the last case 22 days. The first case was followed by rheumatism and endocarditis. The second case occurred immediately after measles and was followed by suppuration in the ear, and three weeks later by acute nephritis. The cases of the parents presented no important complications or sequelæ. Profuse desquamation occurred in all the cases except the second, in which there was no trace of it.—Mr. F. A. Hadley showed the following specimens of uncertain pathology: (1) Cysts filling and distending the whole abdomen in a child nearly 2 years old, and originating in tissue about the pancreas; (2) an Appendix converted into a large cyst, containing jelly-like mucus; and (3) an Appendix from an old woman, aged 63, gangrenous in its whole length.—Dr. Ralph P. Williams showed a girl suffering from Melanotic Sarcoma. The child's general health was quite good. It was proposed to remove the growths and to treat with Coley's fluid.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 20th, 1911, Dr. F. H. Jacob, the President, being in the chair.—Dr. S. E. Gill, in an address on "Ringworm," remarked that ringworm was a contagious skin disease characterised by (*a*) the formation of a mycelial network on the surface of the skin, and (*b*) an infection of the hairs and hair follicles, these characters being usually present together in varying proportions, but often with great predominance of one or the other. The organisms causing it were two—the trichophyton and the microsporon. The latter was much the more resistant to treatment and constituted about 60 to 90 per cent. of all cases found. Ringworm was a disease of children, especially between the ages of five and nine, hence its importance from a school medical officer's point of view. As it was necessary that all cases should be excluded from school on account of its contagiousness, and as from 1 to 4 per cent. of school children, according to locality, were affected, this disease caused a very large loss of grant to local education authorities, especially as the time which elapsed before cure took place was many months, and occasionally years, by the ordinary methods employed. The usual treatment was by (1) antiseptics, which inhibited the spread of the disease, but had little effect in curing the parts affected; (2) counter-irritants, which did good in so far as they caused epilation; and (3) epilation pure and simple, such as X rays, which in the most capable hands cured in about seven weeks as compared with many months by the other methods. The dangers of X ray treatment were much exaggerated, permanent baldness being very rare, and colour changes also were rare. From an administrative point of view it was advisable that the exclusion of ringworm-children from school should be in the hands of one person, and consequently their readmission should also be in his hands. If general practitioners would send their cases to the medical inspection department from time to time for microscopic examination and report it would be useful to them in dealing with a troublesome disease from which very little credit was to be obtained with their patients, and would also be of service in helping the school authorities to prevent the return of children to school who were still in an infective condition.—In the discussion the President spoke of the disappointing results from the use of copper ions, which he had tried extensively.—Mr. R. Wood (Ilkeston) favoured the use of sulphurous acid (B.P.).—Mr. H. G. Ashwell and others spoke of the very disappointing effects of ordinary treatment, even when carried out systematically in institutions.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of this society was held on Dec. 21st, 1911, Dr. T. R. Bradshaw, the President, being in the chair.—Mr. A. A. Bradburne reported the case of a family in which Ptosis and Immobility of the Eyes had been present in five generations, being traceable as far back as 1710. He described the condition of the six members who are at present alive and of seven who are known to have the affection.—Dr. W. B. Warrington referred to a case of congenital but not hereditary ophthalmoplegia that he had recorded.—Dr. E. W. Hope read a note on the Compulsory Notification of Pulmonary Tuberculosis, in which he traced the various stages through which the notification of this disease had passed, and called attention to the fact that after Jan. 1st all cases of pulmonary tuberculosis were to be notified as if tuberculosis were included in the Infectious Diseases Notification Act, 1889.—Dr. W. Murray Cairns read an account of difficult delivery, in which he had performed the operation of kleidotomy.—Mr. R. E. Kelly showed a boy, aged 9, who had been run over by a motor-car and on whom he had performed splenectomy. He was admitted to the Royal Infirmary suffering evidently from internal hæmorrhage, but no exact diagnosis could be made. He was operated on within an hour of the accident. The spleen was severely lacerated and had to be removed. Recovery was uneventful. The boy now (six months later) appears perfectly healthy, with the exception of some slightly enlarged lymphatic glands.—Dr. Campbell showed that the blood had undergone the following changes: Red cells, increased hæmoglobin index but no poikilocytes or erythroblasts; white cells, increased lymphocytes, a basophilia of 2½ per cent., and an eosinophilia.—Dr. H. R. Hurter related that in a case of his in which the spleen had been expelled, owing to torsion of the pedicle, there were no blood changes.

Reviews and Notices of Books.

Manual of Surgery. By ALEXIS THOMSON, F.R.C.S. Edin., Professor of Surgery, University of Edinburgh; Surgeon to the Edinburgh Royal Infirmary; and ALEXANDER MILES, F.R.C.S. Edin., Surgeon to the Edinburgh Royal Infirmary. Vol. I., General Surgery. Fourth edition, revised and enlarged, with 297 illustrations. London, Edinburgh, and Glasgow: Henry Frowde and Hodder and Stoughton. 1911. Pp. 809. Price 10*s.* 6*d.*

IN this, the fourth, edition of this well-known text-book, the first volume of which has just been published, the authors are making some important changes in the general arrangement of the work; they are adding a third volume, which will deal with operative surgery. In this first volume general surgery is considered, while the second volume will be devoted to regional surgery.

One of the most important points that strike a reader, even in opening a work on surgery, is the manner in which it is illustrated, for illustrations are the best means of giving to the reader rapidly an impression and an interpretation of the text. They are, so to speak, the illuminant which sheds light on the author's train of thought, and in this volume the illustrations are numerous and well chosen, and they fulfil their object. The process by which they are reproduced is good and gives a soft effect. The many skiagrams should prove useful to the student, and they show good detail.

It is difficult to mention any part as pre-eminently good, when all is good, but we are inclined to think that the account of fractures is especially deserving of approval, for this subject, often difficult for students, is described as clearly as possible. Of all fractures those of the neck of the femur appear to cause students the greatest difficulty, but the description given here is clear and should be comprehensible to every one. We are glad to see that an account is given of Chiene's test which is often of value in recognising elevation of either trochanter and yet it is rarely mentioned in text-books. It is used thus: Two lines are drawn, one at the level of the anterior superior iliac spines, and the other at the level of the tips of the great trochanters. Any want of parallelism of these lines indicates an altered position of one trochanter. The modern treatment of fractures is well described.

In the chapter on Tuberculosis, for diagnosis von Pirquet's test is rightly given pre-eminence for practical use. The authors consider that the subcutaneous injection of Koch's tuberculin is not well suited for use on human beings, and Calmette's

conjunctival test is not mentioned, probably as being too dangerous both to the patient's eye and to the surgeon's reputation. Moro's tuberculin ointment test might perhaps have found a place; it has the advantage that no preliminary abrasion of the skin is necessary.

This manual can be recommended to the student and also to the practitioner, for it is clear, concise, and thoroughly trustworthy: it is, and well deserves to be, one of the standard text-books of the present day. We suppose that it is inevitable that the work should increase in size, but we hope that the authors will do their best to keep it within a moderate compass.

Unity in Nature: An Analogy between Music and Life. By C. E. STROMEYER. London: Sherratt and Hughes. 1911. Pp. 589. Price 12*s.* 6*d.* net.

No intelligent reader can fail to find this book of absorbing interest. Mr. C. E. Stromeyer is the engineer-in-chief to the Manchester Steam Users' Association and the author of a well-known book, "Marine Boiler Management and Construction." With reason we are all more or less shy of the metaphysician of to-day, and we welcome with delight the work of a practical engineer on the greatest of all subjects; for, to quote the author, engineers base no conclusions "on false evidence or on sophistical arguments. They abhor every suggestion of finality, for that is a stumbling block to improvement and progress. They lean on analogy, feeling that, from first to last, each experiment is but the analogue of the next one ..... and that there is no end to possible researches and improvements."

Every modern science now rests upon two established principles—the indestructibility of matter and the conservation of energy—and to Mr. Stromeyer there is a parallelism of these two realities—matter and energy—in our world of space and time with the rhythm and melody in the music-world of time. Music, of course, has no existence in space but only in time, while its two constituents differ in a remarkable way. "Rhythm can lead an independent life, as in the drum beating of the Orientals; melody without rhythm is inconceivable; in fact, melody has to be carried, she cannot walk alone, and yet she gives the impression of being the superior."....."Melody loves change, yet she is never without her supporting partner, rhythm; she may leave one musical measure for another and yet she will be recognisable as the same musical theme; but if she attempts to live alone she is dead as a melody." In a similar way we only know of energy when it is in association with its more stolid partner, matter, in our complex world of space and time.

A quite rudimentary idea of the subject of this book may be given by these extracts, but the analogy is so novel that there is a great difficulty in explaining the point of view in the space of a review. After dealing with Matter, Energy, Geology, Evolution, the Creator and His work, Mr. Stromeyer considers What is Perfect Music? and, in the following chapter, Perfect Life and Human Happiness; he then treats of Ethics, Education, Political Economy, State Harmony, and the Reserve Power of the State. Finally, he scathingly criticises some of the prevalent State incongruities and discords. A few quotations will probably give an indication of some of his views and of the simple and clear way in which he expresses them. Thus, speaking of education, he says, "Examinations if necessary at all should be, as regards mental capacities, what mechanical tests should be as regards properties of minerals. ..... The tendency amongst examiners will always be to arrange their tests so as to be able to judge decisively, not what the boy will be, but what he is; ..... so a premium is placed on memory, which more often than not is a sign of weak reasoning power." After comparing the automatic tool machine, which excels in turning out uniform work, with an amateur's lathe, which can do almost anything with any material, he says it is the amateur's brain, not the automatic brain, that can think quickly and correctly on all things, and can deal with any modern event in a rational spirit. About Board School teachers he gives this pregnant sentence: "It is truly surprising that the sturdy British artisans, whose Unions exclude labourers from their trades, should allow the labourers' children to become their children's teachers." In another place he commends the ancient Chinese system of ennoblement, according to which each child would have to pass through a grade that is one degree lower than that of his parent; if noble; consequently, as in China, a man can only rise two grades during life; it would be only possible for him under the most favourable conditions eventually to attain a dignity one grade higher than that of his parent.

When dealing with ethical questions the author suggests that a perfect life requires the maintenance of a due balance between the two opposing functions—reason and instinct. If reason unduly intensifies instinct, immorality results, whereas crime occurs when reason crushes instinct. The analogy in the music world is not adduced, but as instinct is more primitive than reason the reader is led to institute comparison with the imperfect music that results from the predominance of rhythm in drum tattoos (immorality) and the absence of rhythm that kills all musical life (crime).

One or two errors must be noted. Few biologists, we imagine, will agree with Mr. Stromeyer's remarks about the conclusions that have been drawn from Mendel's observations. Napoleon was not the undisputed possessor of a "perfect bodily constitution," while the statement that "repeated doses of opium are demanded" when Bright's disease is threatened is startling. On p. 327 there is a reference to the Greek Testament (1 Cor. vii. 21) which we have been unable to verify, but this may be due to a printer's error.

The scope of Mr. Stromeyer's knowledge, ranging over all the sciences with frequent illuminating historical references, is immense, and we cordially recommend this stimulating book to our readers.

Triumphs and Wonders of Modern Chemistry. By GEOFFREY MARTIN, B.Sc. Lond., M.Sc. Bristol, Ph.D. Rostock. London: Sampson Low, Marston, and Co., Limited. 1911. Pp. 358. Price 7*s.* 6*d.* net.

THE author may well be excused his unbounded enthusiasm over the triumphs of modern chemistry, for they are marvellous. It has been Dr. Martin's lot as a lecturer on chemistry to come into frequent contact with many pupils of different ages and of both sexes who have felt much interest in the new chemistry, as solving the grand questions of the universe in which they live and of the matter which surrounds them on every side; but often these pupils have had neither the leisure nor the inclination to master the technicalities and enter into the minutiæ of the regular text-books of chemistry. He has therefore provided for a wide class of readers who are intelligent without being learned.

The most satisfactory feature of the book is the author's clear exposition of the significance of those elementary chemical facts the importance of which, in the ordinary text-book on chemistry, are commonly left to the reader to find out for himself. The chapters with the headings, "Life on a Nitrogen World," "How Lightning Combines Nitrogen," "Nitrogen in Living Matter," "Problem of Fixing Nitrogen," "Manures," "Will our Food be Made in Future in Chemical Laboratories?", "Circulation of Nitrogen in Nature," illustrate this attitude exactly;

while in the chapters on the element carbon and carbon dioxide will be found some most interesting considerations upon such points as the cycle of carbon in nature, the rôle of coal, the life-history of the diamond, the steadily increasing amount of carbonic acid in the air, the evolution of that gas from volcanoes, its occurrence in effervescent springs, and so on. The chapter on "Fire, Flame, and Spectral Analysis" contains graphic descriptions characteristic of the book. Take, for example, the following: "It seems incredible that man, an animalcule crawling upon a grain of dust flung at random into a fathomless abyss, should have succeeded in actually analysing mighty suns millions, nay billions, of miles away with as much ease as he analyses a piece of rock, or a lump of salt, found to hand on the surface of the earth." Then follows a description in terms perfectly clear to the lay reader as to the part played by the spectroscope in making such an accomplishment simple.

The illustrations throughout the pages are vivid, although in places they are distinctly grotesque. But this counts for little in view of the freedom from exaggeration which marks the text; the temptation which the treatment of fascinating subjects offers to an enthusiastic writer to "let himself go" having been manfully resisted. This book will solve problems which worry many people of an inquiring mind; they will be grateful for the clear glimpse into the nature of things afforded by recent discoveries as expounded by Dr. Martin. The book gives to all not highly equipped in chemistry, physics, and technical knowledge an opportunity of appreciating the greatest phenomena of the universe.

The Real Cause of Stammering, and its Permanent Cure. A Treatise on Psycho-analytical Lines. By ALFRED APPELT, Principal of the Institute for Stammerers, Goldington, Bedford. London: Methuen and Co. 1911. Pp. 234. Price 3*s.* 6*d.* net.

No one who has had any long experience with stammerers will be inclined to doubt that their affliction is in the great majority of cases a disturbance on the highest, or psychical, level of nervous function. It would be perhaps too much to maintain that peripheral causation of the condition is impossible, but the facts that plead in favour of the former localisation are impressive in their significance. Stammering, in other words, is essentially a neurosis, and once careful examination has dispelled the likelihood of any extrinsic source for the mischief, the condition should be treated in the light of this knowledge. Mr. Appelt, evidently an enthusiastic follower of the Freudian school, hails in psycho-analysis the panacea of stammering. He has felt it incumbent on him to "remove the veil of mystery" which he supposes has hitherto hung over the treatment of stammering, and has written this book admittedly from the point of view of the stammerer himself. Whether the latter is likely to be impressed or influenced or instructed by the "revelations" of the causation of his trouble furnished by the author is another matter. He will, no doubt, be interested to read that his sexual life begins from the day of his birth; that in his tender years he has come into contact with the sexual problem and "feels a libidinous emotion from his unconscious," which is experienced by him (for some unexplained reason) as dread; that his "mother, father, nurse, or nursemaid is ..... his first erotic love" (one is thankful Mr. Appelt has not employed the even more repulsive language of Freud himself in this connexion); and he will learn that thereafter "introversion of his libido" sets in, that "a superfluity of libido in the child's soul (conscious) and in repression (unconscious) results in the formation of an emotional complex" (whatever that may mean), and that once this is formed the impediment of stammering may develop. Oddly enough, Mr. Appelt seems to be aware of certain difficulties associated with the acceptance of these Freudian commonplaces, for he declares that in these circumstances stammering will set in *in cases where the child is disposed to stammer* (italics ours). Further, after asserting that shock, fright, or disease never produces permanent impediments of speech, he says a few pages later that the emotional complex will not take the form of stammering unless "the speech nerves are weakened owing to heredity, to a shock, or to diseases like whooping-cough or diphtheria."

We cannot follow the author through the long chapters on therapeutics, which may reasonably be expected to be those to which the embarrassed stammerer—his prospective reader—will first of all turn. Yet in them the uninitiated will find, we venture to say, a great deal that is difficult of comprehension, as well as much that is hypothetical to a degree. We can find no hint of possible difficulties in the way of the application of the psycho-analytic method to children, who must form a large, if not the major, portion of the stammerer class. To ask a child to give with concentration and sincerity a detailed account of its life and environment, to enjoin it to allow thoughts to come forward that inner resistances are repressing, to tell it to react in a subjective manner on the stimulus-word, and so on, is absurd. Mr. Appelt embraces whole-heartedly Freud's interpretation of dreams, but it is not clear in what way the pages devoted to a consideration of this very debateable matter can be expected to aid the stammerer, whose knowledge of such scientific jargon as "latent content" and "manifest content" must be limited. It is unfortunate that a slipshod use of medical terms should occur with some frequency in the book. Stammering is referred to at one time as a manifestation of hysteria, again as a phobia, in another place as a condition akin to writer's cramp. The use of the term "neurosis" by the author is confusing and inaccurate—e.g., "the soil from which neurosis sprang into existence was already prepared by erotic emotion," &c. There is a curious mistake on p. 146 in reference to a statement attributed to Professor Janet.

A Manual of Practical Hygiene for Students, Physicians, and Health Officers. By CHARLES HARRINGTON, M.D., and M. W. RICHARDSON, M.D. Fourth edition. London: Henry Kimpton. Glasgow: Alexander Stenhouse. Pp. 850. Price 21*s.* net.

BEFORE his departure in 1908 for England, where he died unexpectedly, Dr. Harrington, the late professor of hygiene at Harvard University, had been preparing a revision of the "Practical Hygiene," of which he was the author, then in its third edition. His manuscript, as well as the remainder of the volume, have been revised and brought up to date by Dr. Mark Wyman Richardson, secretary to the State Board of Health of Massachusetts. The revision has been extensive, and Dr. Richardson has rendered a great service in undertaking it with such care and thoroughness. The present edition has lost nothing in clearness of exposition and excellent literary style; it is well printed, illustrated, and indexed. As a rule, text-books on public health matters which are published in the United States are used in this country principally for reference on matters in which American practice or theory differs from our own, but this volume makes a wider claim, as European and tropical work has been freely drawn upon, and the purely administrative questions, where each country has its own methods, find only a secondary place.

The first half of the volume deals with foods, air, soil, and water; the second principally with the hygiene of habitations, sewage disposal, disinfectants, military and naval hygiene, occupation and disease, insects in relation to human

disease, vital statistics, infection and immunity, vaccination and quarantine. The exposition of current theories of infection and immunity is particularly good, and in this, as in most sections of the book, the authors have made it their primary object to present a trustworthy review of facts gathered from all sources and of broad principles which should be accepted, while avoiding dogmatic statements on matters which remain controversial.

In any work of this nature there are necessarily subjects which individual readers would have wished to see amplified, and statements which seem to need qualification in the light of observations which are not referred to; but, as a whole, we have found very little to which serious exception could be taken. In view of the very full consideration given to milk in its relation to human tuberculosis, it is unfortunate that the volume was completed before the issue of the final report of the recent Royal Commission on Human and Animal Tuberculosis, which would have placed the authors on surer ground in dealing with the potential infectivity of tuberculosis of bovine origin. And for future editions, which are certain to be called for, we would suggest that in such matters as the methods of spread of small-pox, enteric fever, and scarlet fever greater use might be made of the publications of the Epidemiological Society of London (now continued in the Proceedings of the Royal Society of Medicine), which form so useful a compendium of the developments of preventive medicine, in its scientific aspects, in this country. We anticipate for this useful manual the increasing popularity which it fully deserves.

Manual of Toxicology. By R. A. WITTHAUS, A.M., M.D., Professor of Chemistry, Toxicology, and Medical Jurisprudence in Cornell University. Reprinted from Witthaus and Becker's "Medical Jurisprudence, Forensic Medicine, and Toxicology" (second edition). London: Baillière, Tindall, and Cox. 1911. Pp. 1261. Price 30*s.* net.

THE general plan of this book is excellent, and the labour of reference is considerably lightened by the classification adopted. There is no preface, but the introductory chapter is an admirable essay upon the history of toxicology, at the end of which is a very complete bibliography of the subject, divided into—A, works exclusively toxicological: I., printed since 1850; II., between 1700 and 1850; III., before 1700. B, modern works on medical jurisprudence, &c., having reference to toxicology. The reader is next introduced to the difficulty of defining in succinct terms a poison. Dr. Witthaus distinguishes chemical agents which may cause death or injury by their destructive action upon the stomach as "corrosives." Clearing such harmful agents out of the way his definition of a poison becomes: "A poison is a substance which being in solution in, or acting chemically upon, the blood may cause death or serious bodily harm." A corrosive, however, is defined as "a substance capable of causing death or injury by its chemical action upon a tissue with which it comes in direct contact." The matter of definition does not rest so simply there, for obviously a substance, for example, hydrochloric acid, is a corrosive in strong form, whereas in dilute form it has no corrosive properties at all. Then what definition will include pathogenic bacteria which are not poisonous *per se*, but which are capable of elaborating poisons in a suitable soil? The best attempt at defining a poison is the French one quoted by the author, that "a poison is any substance which taken into the interior, or applied to the exterior of the body, is capable of causing death, or at least of destroying or seriously affecting health." The chapter on general toxicology begins thus with an interesting discussion, and the succeeding sections on causation, statistics, treatment, absorption, distribution, and elimination are most carefully done. The chapter on special toxicology includes the corrosives, the mineral acids, the alkalies, and the halogens.

The mineral poisons are first considered, of which arsenic, antimony, and phosphorus are examples; then the metallic poisons, such as barium, bismuth, copper, and zinc (chlorates are included in this category for a reason that is not quite clear, except it be that of convenience); then vegetable poisons (acids and alkaloidal); then animal poisons; and, finally, what the author calls synthetic poisons, which include carbon monoxide, chloroform, chloral, phenols, and nitrobenzene. Of course, certain poisons included in other sections also may be called synthetic, but he refers here to the poisonous organic substances which have no existence in nature or occur therein naturally only in minute quantity—substances which are the products of the chemical laboratory or of industrial processes. The care taken to record trustworthy methods of chemical detection and to indicate where the possibility of fallacies may arise is admirable. Such a single sentence as "we have failed to obtain this reaction by proceeding as directed above" (p. 938), is a mark of the author's precision and scientific attitude, and inspires confidence in the processes accepted. The experience of actual laboratory work at the bench is obviously of the utmost importance when that work is connected with the detection of poisons by chemical means.

The references to literature are very copious, and the index is a model of its kind. In particular will be appreciated the inclusion under the word "process" of the proper names of persons connected with various tests and analytical methods. The list, in alphabetical order, contains about 80 such names. The work is thorough-going, and already ranks high amongst the standard books of reference upon the subject.

The Ancient Egyptians and their Influence upon the Civilisation of Europe. (Harper's Library of Living Thought.) By G. ELLIOT SMITH, M.A., M.D., F.R.S., Professor of Anatomy in the University of Manchester, &c. With frontispiece and 15 figures in the text. London and New York: Harper and Brothers. 1911. Pp. 186. Price 2*s.* 6*d.* net.

THE impression left upon the mind of an attentive reader after the perusal of this book is likely to be that of astonishment—astonishment that so much new thought has been crowded into a small book of unpretentious exterior. The volumes of Harper's excellent series comprise semi-popular essays by a distinguished group of authors, and one expected to find no more, perhaps, than a clear and easily read account of the well-worn stock-in-trade of the Egyptologist. The present volume is, however, a fascinatingly daring excursion into the origin of the early population of the Nile Valley and its influences upon the ancient peoples of Asia, Africa, and Europe. Professor Elliot Smith in his nine years' familiarity with Egyptians, ancient and modern, had exceptional opportunities; and he was fortunate, too, that his graveside investigations were conducted with archæologists who, working with the best scientific methods, were able to provide him with what no other anthropologist in Egypt has hitherto had—viz., an accurate dating of all the material that he handled. Under these best of conditions he has examined a vast series of bodies representative of all periods of Egyptian history. It may be said truly that even the proto-Egyptian, the inhabitant of the Nile Valley who lived some 6000 years ago, has been made to parade all the details of his person, his clothing, his diet, and his whole life before us to-day. The author shows that, so far as our present knowledge goes, everything points to the fact that these people were indigenous to the Nile Valley, and that neither they nor their culture were imported from without. He depicts their life

in Egypt and Nubia and traces their kinsfolk in neighbouring lands; he shows how their arts evolved, till finally the tiny spark they kindled in a humble way lit up that great world-fire—the knowledge of metals—which, though it left the quiet dweller on the banks of the Nile comparatively undisturbed, set neighbouring hordes moving as waves across the mountains of Asia right to the western limits of Europe itself. The book, one feels, has somewhat the same tendency as the early evolution of Egyptian domestic arts of which it treats, for it seems to fire whole trains of thought, and to turn into a living thing what before was merely material for academic calisthenics.

LIBRARY TABLE.

Report on the Housing of Miners in Stirlingshire and Dumbartonshire. By JOHN C. MCVAIL, M.D. St. And., LL.D. Glasg., County Medical Officer. Glasgow: Robert Maclehose and Co., Limited. 1911.—The Local Government Board has recently called for reports from the medical officers of mining counties in Scotland on the housing of miners. A stranger to the subject might ask why the housing of miners should be specially investigated, but the answer is to be found in the conditions of the industry. Other workers, save agricultural labourers, are usually employed in or close to towns or cities where house accommodation is obtained in the ordinary way, the nature and cost of the accommodation being governed by the law of supply and demand. But coal-mines may be sunk far from any centre of population, and houses have then to be provided within a convenient distance of the shafts. This is seldom or never done by private enterprise, and a mining firm when opening a new colliery not near a town has usually to build a village for its employees. Much valuable, and at the same time interesting, information on the "Housing of Miners" has been embodied in this report which is published by the local county council at the request of the Local Government Board. Many defects are brought to notice, the commonest, most serious, and most flagrant nuisance that can be found in a village community, whether mining or ordinary, being the privy-ashpit system, which still prevails in so many places in Scotland, and which exists, though in very varying degrees, at most of the colliery rows in the counties to which Dr. McVail's report refers. Such privy middens, situated perhaps only 10 or 15 yards, occasionally much less, from dwelling-house doors and windows, are serious factors in the production and conveyance of disease, particularly by the breeding of flies, which, with their feet dipped in filth, invade the houses and infect food. Dogs and cats may rake amongst the refuse and afterwards play with children or contaminate food or milk that is standing exposed in the living room. Other points appearing to require attention are the provision of sculleries, indoor water-supply, water-closets, dustbins, washing houses, hot water-supply if practicable, coal cellars, paved footpaths, good roads, and garden plots. The maintenance of houses, roadways, drains, water-pipes, wells, sanitary conveniences, fences and drying greens in good order and repair is also urged. Truly such a deplorable condition of affairs as is shown in this report requires immediate remedy.

District Nursing. By MABEL JACQUES, Graduate of the Hospital of the University of Pennsylvania. With an introduction by JOHN H. PRYOR, M.D. 1911. New York: The Macmillan Company. Pp. 162. Price 4*s.* 6*d.* net.—It was a wealthy and philanthropic merchant of Liverpool, the writer tells us, who first conceived the idea of giving to the poor, in their own homes, the care of a trained nurse, so essential an adjunct in the saving of lives. As a result the first district or visiting nursing association was formed in Liverpool. Other cities quickly recognised the advantage of the movement and adopted it. District nursing, however, is no modern innovation, for in the early Christian era we know that there were certain women who visited from house to house caring for the sick. The need of a handbook dealing with the problems of organisation and expansion of district nursing is manifest at the present time, and this book indicates concisely the lines upon which district nursing should be based. Recent advances in charitable and social work make the district nurse an important factor in many new phases of philanthropic endeavour. In the campaign against tuberculosis and infectious diseases she will become more and more a necessary agency in preventive medicine. The time has now come when no public health department can be administered without the aid of a properly supervised and directed staff, comprising, amongst others, district visitors and district nurses. The writer has evidently studied her subject well, and this small handbook forms a welcome addition to a medical library.

Herbert Fry's Royal Guide to the London Charities. Edited by JOHN LANE. London: Chatto and Windus. 1912. Pp. 371. Price 1*s.* 6*d.*—This cheap and handy guide to the charities of London is now in its forty-eighth annual issue. The names of the various charities are given in alphabetical order, and brief particulars are supplied with regard to their aims and results, together with the dates of their foundation, the names of the chief officials, and their official addresses. There is also a classified index of institutions, which considerably enhances the value of the book. In an interesting preface on the charitable work of the year it is satisfactory to learn that for the support of the various charities a sum of no less than £30,000,000 sterling is held in investments, while large bequests are added year by year. Still, the fine sums available for charitable purposes do not adequately supply the needs of the institutions designed to ameliorate the undesirable social conditions which are a consequence of the growth of civilisation. The Insurance Act is causing much anxiety to our hospital managers, who fear that the provisions of the Act will affect adversely the contributions which they receive from employers of labour and from the better class of workmen, and, indeed, complaints that such is already occurring are now appearing in the daily press. As the editor of "Fry's Charities" points out, the public will be pursuing a singularly short-sighted policy should this prove to be the case, for "besides the direct treatment they" (the hospitals) "offer for disease and accidents, they act as schools of medical research and as unrivalled training grounds for the doctors and nurses, upon whose skill, patience, and genius the whole fabric of our medical world is built up."

JOURNALS AND MAGAZINES.

The Bristol Medico-Chirurgical Journal.—In the December issue of this magazine Mr. Charles A. Morton discusses the present position of the surgery of malignant growths, giving valuable advice as to the treatment of carcinoma of the rectum. Dr. J. A. Nixon calls attention to the spread of syphilis among members of a household by simple contagion, especially in the case of infants; and Dr. Newman Nield contributes some observations on tea poisoning, which he finds to be a not very rare condition. Dr. Carey Coombs writes on cardiac arrhythmia, with records of five cases, and Mr. G. Munro Smith on herpes and brachial neuritis, which may be different manifestations of the same affection.

The Birmingham Medical Review.—The two original articles which are contained in the December number of this review are devoted to diseases of children. Dr. Hugh

Thursfield] discusses errors and difficulties of diagnosis, including obscure cases of fever and of œdema, abdominal tumours and meningitis; and Mr. Seymour Barling deals with abdominal emergencies in childhood, especially with appendicitis and intussusception.

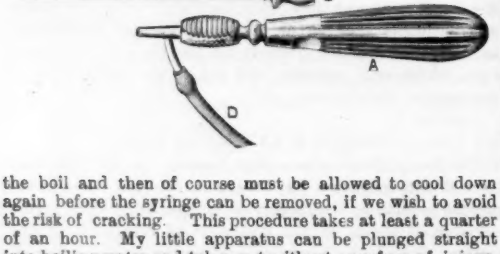
The Medical Chronicle.—Professor W. Stirling, writing in the December issue of this journal, makes a plea for the study of the history of medicine, and gives a brief summary of the chief events in this field, founded on the recently published work of Professor Neuburger, now translated into English. Dr. R. T. Williamson writes on the use of the spectroscope in medicine, and Mr. Robert Ollerenshaw discusses the causes and treatment of coxa vara.

The Edinburgh Medical Journal.—The late Professor Sir John Struthers made provision in his will for a lecture on anatomy to be delivered every third year in the Royal College of Surgeons of Edinburgh. The first of these lectures, delivered by Dr. Arthur Keith, is published in the current number of this journal. It deals with the progress of anatomy during Struthers's life and with the various men of note by whom advances were made. Dr. William Russell writes on the position of the stomach as a guide to pyloric or duodenal difficulty; and Dr. James Ritchie contributes a cautious paper on the subject of vaccine therapy, noting that practice in this field is in advance of actual knowledge. Mr. J. W. Struthers records a case of a Dermoid Cyst of the Neck, containing a number of curious soft white concretions.

New Inventions.

A CONVENIENT AND SIMPLE APPARATUS FOR THECAL (LUMBAR) PUNCTURE.

I FIND that the little apparatus, of which an illustration is here given, facilitates lumbar puncture and enables the operator to have greater control than if a syringe is used. Most authorities agree that suction should not be employed, therefore the syringe usually only serves as a handle. The syringe needle is usually unprovided with a stilette and the fluid is liable to become contaminated when dripping from the end of the needle after the syringe has been removed. A glass syringe is also liable to crack whilst being sterilised, and the process of sterilisation must take some time, as the syringe must be put into cold water which is brought up to



the boil and then of course must be allowed to cool down again before the syringe can be removed, if we wish to avoid the risk of cracking. This procedure takes at least a quarter of an hour. My little apparatus can be plunged straight into boiling water and taken out without any fear of injury. The cerebro-spinal fluid is conducted through the rubber tube D into a sterile test-tube, and thus there is practically no fear of contamination. If, after the puncture has been made, the fluid does not flow into the test-tube the holder A is removed and the stilette C passed down the needle B. I find, however, that it is only very occasionally that the stilette has to be used.

The apparatus was made for me by the Holborn Surgical Instrument Co., Limited, Holborn Circus, London, E.C.

H. WANSEY BAYLY, M.R.C.S. Eng., L.R.C.P. Lond.,
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REPORT OF THE ASYLUMS COMMITTEE OF THE LONDON COUNTY COUNCIL FOR THE YEAR ENDING MARCH 31ST, 1911.

Statistics.

THE average daily numbers on the registers of the nine London County Council asylums and epileptic colony was 19,997. There were admitted during the year 3727 patients, and 1143 persons were discharged recovered. There were 1645 deaths. The patients for whom on Jan. 1st, 1911, the Council was primarily responsible to find accommodation was 20,158, this number including, besides the patients in the asylums, patients in other county and borough asylums under the committee's contracts or under arrangements made by the guardians. The accommodation available on Jan. 1st, 1910 (excluding Claybury Hall), was 19,867 beds, being an increase of 140 beds. The increase would have been greater but for a reduction in the accommodation for women effected at Hanwell Asylum through the disuse of some basement dormitories which had been adapted for occupation during a time of great pressure. The above number of patients is only a proportion of the total number coming under the purview of the London Poor-law authorities. It excludes patients in the Metropolitan Asylums Boards asylums, in workhouses, and those living with relatives and friends who are visited quarterly by the parish medical officer. This year's figures of the number of patients for whom the Council has been responsible show an increase of 244 on those for the previous year, and the rate of increase is again ascending, though the average rate of increase over the past 21 years appears to be declining.

Mental Hospital: Selection of Site.

Plans of a new asylum on the villa principle to be erected on the Horton Estate are still in preparation. A contract for the purchase for £10,000 of two freehold properties at Denmark Hill has been entered into, and is waiting the approval of the Secretary of State. The land, some 4½ acres in area, it is hoped will provide a satisfactory site for the mental hospital for 100 patients towards the cost of which Dr. Henry Maudsley in 1908 promised to contribute a sum of £30,000. It appears that the task of selecting a suitable site within four miles of Charing Cross has been particularly difficult. So far as it is possible to form an estimate of the cost of building and equipment, it is anticipated that this will amount to another £40,000.

Recurrent Insanity.[1]

Attention is drawn to a remarkable instance of a male patient admitted to Banstead Asylum on Feb. 13th, 1911, for the eighth time. This man is only 37 years old, and in addition to the periods passed at Banstead has been in Bethlem Royal Hospital, Ayrshire Asylum, the Kent County Asylum, Hanwell Asylum, and in a private licensed house. He has therefore been admitted to asylums on no less than 13 occasions. He married in 1903 and there are five children by the marriage, two males and three females (ages ranging from a little more than 1 year to 7 years), all of whom are now chargeable to the guardians of a London parish. The guardians' general relieving officer further states that the patient's wife is at present employed in service, but that the whole of the family have on and off been in receipt of indoor and outdoor relief since 1906.

These facts plainly indicate the great difficulty experienced in dealing with cases of recurrent insanity. Such cases, as the law stands at present, must be discharged as soon as they are apparently recovered, but it is often quite evident that with the removal of the fostering restraints of asylum life and the re-subjection of the patient to the stress and hardships of normal existence he will speedily break down. Moreover, as in the present instance, opportunity is afforded by the intervals of liberty for the propagation of children who must share in the mental and nervous instability of the parent, and who in their turn will probably swell the number of persons for whom asylum accommodation and care have to be provided.

Chapter XXIX. contains the report of the director of the Pathological Laboratory, Dr. F. W. Mott. It contains long lists of the papers issued and about to be issued.

[1] See THE LANCET, Dec. 16th, 1911, p. 1721.

THE LANCET.

LONDON: SATURDAY, JANUARY 13, 1912.

The National Insurance Act.

THE feeling among the medical profession with regard to the National Insurance Act has undergone no change during the week, unless it be that the general distrust of its provisions has increased. Many practitioners, the exact figure being rather uncertain, have signified public disapproval of the measure in response to questions submitted from two different sources. This was absolutely certain to be the result of the reference of any general question on the point to the whole constituency. For the future the feeling of the medical profession as a whole that the measure in its present form threatens sorely their professional and scientific status can be taken for granted, leaving all free to work towards a fair solution of the grave sociological difficulties that have been thrust upon us—and thrust upon us, we have always believed, with the best of intention towards mankind, if with small knowledge of medical circumstances.

Dr. LAURISTON SHAW addresses a letter to us this week in which he points out "the great need ..... to search out our points of agreement and work steadily together for their achievement. No sense of false pride or petty ambition must stand in the way of making use of every individual or institution that may be useful in securing our common aim." That is well said, but it is one thing to use an institution for a common aim and another to have a common aim in using an institution. The medical profession may easily endorse Dr. LAURISTON SHAW'S words, which have often appeared in our own columns, as to the potentialities for union contained in the British Medical Association, and yet may believe—as a large majority do—that the executive of the Association has not developed those potentialities at a critical point in medical history. It is for this reason, and for no other, that two movements have quickly sprung up to reinforce the Association, and as far as the Association is concerned its first task is to arrange that its members agree to live together in peace. On this matter sound advice is given them by Dr. CHARLES HARFORD in our columns this week. When the Association is a harmonious institution, it can be made use of in the way which Dr. LAURISTON SHAW advocates. Its task will be that of all of us—namely, to consider what are the regulations under which the Act, now the law of the land, can be so worked that medical service receives proper recognition, and that the public obtain benefits that are benefits in reality as well as benefits under an Act. It is expressly stated in the National Insurance Act that the Commissioners are to frame regulations in accordance with which the Local Insurance Committees will arrange with practitioners for the medical treatment of insured persons. These regulations will soon be forthcoming, and, as we said last week, union within our ranks must produce an impression upon those charged with framing them. It is these regulations which the medical profession must consider before deciding to take part in, or to stand aside from, the working of the Act, and what has to be done now is to prepare to meet the regulations in the spirit in which they are offered. The great corporations of the profession may here be able to play a part.

The Qualities of a Consultant.

THE principal teachers in any school of medicine would probably be nearly unanimous in any endeavour to select from among their students those who were most likely to achieve distinction in some branch of their future calling; but it may be doubted whether they would be equally in accord concerning the still more definite selection of those in whom this branch would be what is commonly known as consulting practice, whether generally medical or surgical, or confined within the narrower limits of a specialty. We should do no more than bare justice in admitting that the physicians and surgeons who, by common consent of the profession and of the public, have come to occupy what may be described as the highest pinnacles of consulting rank, have almost invariably been worthy of the confidence reposed in them; but we must equally admit that many others who, in the estimation of those best acquainted with their merits and attainments, have been at least equally worthy, have continuously failed to secure equal recognition, even though assisted by the ordinary opportunities of practice and teaching which are afforded by hospital appointments. Consideration of the causes alike of the successes and of the failures indicates that the circumstances of student life and of training may tend to the ultimate development of either issue, but the indication is a rough one. Is the successful consultant born with special qualifications in which the unsuccessful, although in some respects equally learned men, may be deficient; or do the two classes differ only in respect of the bearing upon their respective careers of the "time and chance that happeneth unto all"? In either case is it possible for the ambitious student so to regulate his studies or so to train his faculties that his chances in this particular competition may be improved? Are there any things which, with special reference to this object of ambition, he should strive to do, or any other things, perhaps more important still, which it is necessary for him to avoid? What, in short, are the special characteristics of consultants as a class, and in what manner, and to what degree, are these characteristics of a kind to admit of cultivation? The essential preliminaries of adequate professional knowledge, and for surgeons of adequate manipulative skill, must, of course, be assumed to exist as essential foundations in every case.

Taking, in the first instance, the needs of the practitioner by whom the consultant is called in, it may perhaps be assumed that one of the first of them is the support to be derived from the suggestion of a perfectly definite

course of procedure, founded upon an equally definite recognition of the true character of the departure from health. In some cases this character may be altogether obscure; in others it may appear to admit of one out of two or more solutions; and in all the first-aid asked for from the consultant is accuracy and completeness of diagnosis, or, in other words, not only the truth, but the whole truth, as far as it is ascertainable. The power of meeting this demand in a satisfactory manner is generally gained in one way—by the most minute possible study of symptoms (whether prominent or obscure) in the wards of a hospital, and by the most accurate possible comparison of these symptoms with the conditions which are disclosed either in the progress of the case towards recovery or ultimately in the post-mortem room. Such a comparison will usually be the more fruitful the less it is associated with hypothesis; the collection of observations should be large before any attempt is made to use them as a foundation for general deductions, lest these, being premature or erroneous, become distorting media for subsequent experience. No two cases of illness are alike, and the differential phenomena are those which it is of the greatest importance to observe and to remember. The consultant will constantly be called upon to deal with some apparently obvious malady *plus* x, and his power of determining the value of x will be the element on which his success will in all probability depend. But although assistance in the recondite may be what is generally sought from the consultant, the general practitioner and his patient may stand in need of reassurance where there seems no reasonable doubt of the diagnosis that has been made. It is often particularly difficult to follow the recommendation that the same course should be pursued that has been tried already, and that patience should be maintained in the face of the seeming failure of that course to remove the conditions. In this situation no one will be found more useful than that rather exceptional person, the consultant who is developing or who has developed from the general practitioner into the counsellor of general practitioners. It is true that throughout the busiest years of a successful career such a consultant may be in no close way in touch with the pathological side of hospital work. He must rely for his appreciation of the merits of many new therapeutic developments upon a much smaller personal experience than he who is in honorary charge of many beds in a great public institution; and his chances of having seen more than an isolated case of rare disease will not be so great. So far he must be at a disadvantage in comparison with the more usual type of consultant surgeon or physician; but, on the other hand, his great experience of the domestic treatment of disease may enable him more readily than one whose professional life is largely confined to the wards of his hospital and the walls of his consulting room to estimate how far in an uncertain case a certain treatment should still be persevered in; how far his brother practitioner is right in estimating the general condition of the patient to be no better or no worse over a long term of illness; and, lastly, how far details of nursing and treatment could be made less irksome. There is every room for such consultants, and the practical help which they can be to their fellow practitioners is truly great; with the present great developments of post-graduate work they may well become more numerous as the opportunities of renewing familiarity with the latest hospital experience grow more numerous and effective.

The main thoroughfares of diagnosis have been marked out by the footsteps of many generations of practitioners; and it is chiefly in the by-ways that opportunity can now be found for the display of exceptional acumen, or for the exercise of powers of observation trained to notice and to interpret the smallest departures from the customary course of things. There can, nevertheless, be no more fatal error than to allow the obvious to divert attention from the possibly obscure, or to lead to neglect of methods of observation not immediately suggested by the symptoms. The consultant can neglect nothing, and his most remarkable successes will often be the results of leaving no element of the case unexplored. This is the answer to all questions about the born capacity of the student to become a consultant, and as to the part played by luck in the attainment of success in such a position. The special characteristics of successful consultants are observation to see and judgment to weigh, and neither can be acquired save by industry. The most able student may start with the best chance of developing what may be termed the detective faculty, but unless his ability is reinforced by painstaking, minute, and laborious work in the wards his *flair* will avail him little. The general practitioner who has arrived at the position of a consultant owing to the gratifying fact that he becomes recognised, first in his own locality, and later through a more extensive range of country, as a man who is worth consulting, would never have arrived at that position had he not made extraordinarily good use of his opportunities when attached to a hospital, and could not maintain that position if he did not take all possible steps to keep himself abreast of both scientific and technical progress. A consultant is not a man who is ready to be consulted so much as a man whom his colleagues want to consult, a fact which sometimes escapes the attention of the laity.

The Uses of Medical Statistics.

THE limitations of statistics as applied to medical problems are well indicated in the following words of Mr. ARTHUR BOWLEY, the author of one of the best modern treatises on elementary statistics. Speaking of the want of recognition by statisticians themselves of the limitations of their work, he says: "At best they can measure only the numerical aspect of a phenomenon; while very often they must be content with measuring, not the facts they wish, but some allied quantity. We wish to know, for instance, the extent of poverty, its increase or diminution: poverty we cannot define or measure, and we cannot even count the number of the poor; all we can do is to state the number of officially recognised paupers, and add perhaps some estimates from private sources; but this gives us no clue to the intensity of poverty in individual cases. Or we wish to obtain statistics of health: all we can measure is the death-rate, and average length of life—very different

matters. The statistician's contribution to a sociological problem is only one of objective measurement, and this is frequently among the less important of the data; it is as necessary, however, to its solution as accurate measurements are for the construction of a building." Now this is quite true but the time has assuredly passed when it is necessary to justify the skilful employment of statistical methods for the elucidation of medical problems. Certain it is that without such help medicine, as a science, could never have achieved even its present degree of precision.

Our first text-books in the study of preventive medicine are the publications of the Registrar-General, with which the honoured name of WILLIAM FARR, the founder of vital statistics, must ever be identified. The value of the aid received from this source has been appreciated by all interested in the health and prosperity of our people, even where the qualified nature of that aid has been most clearly perceived. Half a century ago RUMSEY of Cheltenham emphasised the contention that as no public account is taken of the number and duration of the attacks of illness which shorten the effective life-time of the people, their condition in respect of health and vitality must be inferred solely from the number of lives lost; and there are facts in abundance to prove that the mere number of deaths in any locality bears no constant, or even approximate, ratio to the amount of unhealthiness actually existing there. Both the personal antecedents of the dead and the remote causes of death now generally escape notice, while the deaths of those who enter a district to die there belong rightfully to another district. Vast numbers succumb in our large hospitals, workhouses, and asylums whose diseases were not contracted in the places where they died, and who can scarcely be said to have lived there. Accordingly, the mere death-rate without the life-rate of the inhabitants, may, and often does, lead to fallacious conclusions as to local unhealthiness. Moreover, when the ages of a population are examined, the crude and hasty deductions from a general death-rate are not infrequently reversed. We doubt whether public opinion would at present support a proposal for the State registration of sickness of all kinds throughout the country. It would appear, however, that with medical officers everywhere responsible for the public health, with the army of parochial medical officers in attendance on the sick poor, and with the Central Department in Whitehall at their head, the setting on foot of such a project ought not to be impracticable; and it should follow that, given the coöperation of the registration staff at Somerset House, the cost of the supplemental service should not be prohibitive. Read in the light of codified information as to sickness incidence the figures relating to death-rates would assume a new importance; moreover, such a scheme of sickness registration might be highly valuable to public health authorities.

The opening years of the current decennium will be remarkable in the history of English vital statistics, as the period in which far-reaching changes have been inaugurated in the arrangement and publication of our national records of mortality and its causes—changes which must necessarily exert a profound effect on the future of State medicine as well as on the progress of sanitary science in this country. We have already noticed[1] the general tendency of the new arrangements adopted at Somerset House for the compilation of statistics, as set forth in the Registrar-General's report for 1909, but we feel it desirable again to allude to the matter for the information of those who are not familiar with the official document. Successive Registrars-General have deplored the discrepancies existing between the statistical data prepared by the local administrative authorities and those published by the Central Office. This anomaly is due to the fact that whereas, on the one hand, the local administrative authorities require statistics relating to urban or rural sanitary districts, on the other hand the tables published annually by the General Register Office relate not to administrative but to registration districts. But, unfortunately, the two types of districts are coextensive in very exceptional cases only. Hitherto the difficulties of general coördination of areas have proved insuperable, although something has already been achieved in this direction at the request of certain of the larger municipalities. It is satisfactory to learn that such of the difficulties as were removeable without alteration of statute law have now been surmounted, and, in view of the almost prohibitory character of those difficulties, the credit due to Mr. BERNARD MALLET is on that account proportionately increased. Accordingly, from the year 1911 onwards the returns of natality and of mortality will be arranged and published according to administrative areas, although the facts must still be collected for registration areas as heretofore. The substitution of the former for the latter of these areas renders desirable a still further correction of the returns. In order to ascertain even approximately the death-rate of a given place the deaths of strangers occurring therein must be excluded, the deaths of natives of the place that have been registered elsewhere being, of course, included. It may, indeed, reasonably be contended that in order to secure for medical statistics a reliable and permanent foundation the establishment of a national system of sickness registration is essential. As a first step the returns of sickness now required by the Local Government Board's orders from the hospital and Poor-law authorities may provisionally be tabulated and circulated, after expert analysis and criticism by the statisticians now dealing with the statutory records of birth and death.

[1] See THE LANCET, March 25th, 1911, p. 827.

FOREIGN UNIVERSITY INTELLIGENCE.—*Amsterdam:* Dr. K. Herman Bouman has been recognised as *privat-docent* of Diagnosis of Mental Diseases.—*Berlin:* The title of Professor has been granted to Dr. Julius Wohlgemuth, Oberarzt of the Frederick the Great Orphanage for Berlin at Rummelsburg; Dr. Erich Müller, surgeon to the Berlin and Brandenburg Cripples' Home; Dr. Konrad Biesalski, a laryngologist and otologist; Dr. Josef Herzfeld; Dr. Max Josph, an eminent dermatologist; and Dr. Ferdinand Hein, assistant in the University Anatomical Institute.—*Bonn:* The title of Professor has been granted to Dr. Karl Grube, well known for his researches on diabetes; Dr. Arthur Hübner, Oberarzt of the University Clinic for Nervous and Mental Diseases.

Annotations.

"Ne quid nimis."

THE SIGNIFICANCE OF THE THEORY OF HEREDITY IN OPHTHALMOLOGY.

THE influence of heredity in disease has long been an accepted fact, and many persons would assert that it has been even an exaggerated fact; but it is only comparatively recently that the hereditary transmission of physiological or pathological characteristics has been sufficiently investigated to afford some insight into the laws which govern the process. The experiments and deductions of Mendel, published in 1865, passed almost unnoticed until attention was drawn to them again in 1900 by de Vries. Since that date the subject has been assiduously worked at experimentally and theoretically by Professor Bateson and many others whose names are familiar to English readers. The Mendelian theory has not been accepted without cavil, and the criticisms of Professor Karl Pearson and others have but added to the impetus of the investigation. All, however, are agreed that the fundamental requirement is the accumulation of well-authenticated and scientifically certified material on the lines introduced by Sir Francis Galton. In no domain of pathology has the collection of illustrative examples been hitherto more productive than in ophthalmology. The types of ocular disease which display most clearly the influence of hereditary transmission are often more sharply defined and less obscured by the possibilities of extraneous influences than most other types of bodily ailments. Nowhere has the investigation been carried on with greater enthusiasm than in England, and the work of Mr. E. Nettleship in this domain stands out *facile princeps*. Professor Peters,[1] in his useful review of past work on heredity in relation to ophthalmology, gives Mr. Nettleship and his English colleagues due credit for their work on the various forms of hereditary cataract, hereditary night-blindness, and the inheritance of errors of refraction. But his paper will be specially welcomed for his review of the publications of German writers on the influence of heredity in congenital abnormalities of the eye. The rival theories of delayed or disordered development and intra-uterine inflammation as explanatory of congenital opacities of the cornea and anterior staphyloma have been warmly discussed in England and abroad, and his remarks on these subjects will be read with interest. Hereditary optic atrophy, an example of maternal transmission, receives less attention than it merits, and the late Mr. Ilbert Hancock's excellent paper is not mentioned. Congenital colour-blindness, too, another and better example of the same mode of transmission, is not dealt with. The author is on less solid foundations when he enters upon the discussion of the hereditary influence in senile cataract and concomitant squint. His remarks upon squint are well worthy of careful consideration, for if it should be proved that there are groups of cases of squint in which the hereditary principle is of prepotent influence it will not be without significance in the rational treatment of this disorder. If, for example, in such cases it should be proved that either congenital amblyopia or the loss of the power of fusing the images derived from the two eyes is a hereditary characteristic little hope of improvement by orthoptic treatment can be held out. The inheritance of optical defects of the eyes has hitherto thrown little light on the laws of heredity, chiefly owing to number and complexity of possible modifying factors. It is in examples of this nature that scientifically controlled statistical investigations are most needed, and such investigations could not be in better hands than Professor Karl Pearson's, who, with Miss Barrington, has already issued a valuable communication on the relative influence of heredity and environment on sight from the Galton Eugenics Laboratory.

[1] Die Bedeutung der Vererbungslehre für die Augenheilkunde. By Professor A. Peters, Rostock. Halle: Carl Marhold. Pp. 30. Price M.1.

DECEMBER AT HOME AND ABROAD.

THE last month of 1911 will rank as one of the mildest and wettest Decembers on record in this country, but both the high temperature and the rainfall were more marked in the south-western, southern, and south-eastern districts than in the north and north-west. There was, nevertheless, a fair amount of sunshine for the time of year. The mildness of the weather was very noticeable during the daytime, and particularly so after sunset. No frost except an occasional whitening of the ground occurred after the 7th or 8th. All the subsequent nights were very mild for the season in nearly all parts of the kingdom, many of them having a minimum temperature reading higher than that of an average December afternoon. Again and again the thermometer rose to 50° sometime between sunrise and sunset, while in the south and south-west that figure was reached or exceeded on a large majority of the days. At Torquay the mean maximum temperature was as high as 52°. In the metropolitan area the mean maximum at Westminster was 50·5°, this being more than a degree higher than that at Kew and Greenwich and as much as 3½° higher than at Hampstead. The nights were also rather milder at Westminster than in the suburbs, the mean minimum being 40·7°, against 39·5° at Hampstead and Greenwich and 39° at Kew. Very few days passed without bringing more or less rain. In the London district generally there were only seven or eight days without a measurable quantity. The aggregate was about 4 in. at Westminster and Greenwich and 4·5 in. at Kew and Hampstead. This, although more than twice the average, is very light compared with that which was common over a wide area in the south-west of England, where numerous localities reported a total exceeding 8 in. and some exceeding 10 in. Over these islands as a whole the sunshine showed little divergence from the normal, some places registering an excess and others a deficit. At some of the most rainy spots in the south-west of England, however, there was much more sunshine than is usual in December. At Torquay, for instance, where rain fell on 26 days and attained a total of 10·4 in. (6·5 in. above the average for December), the sun shone brilliantly during 73 hours, a figure 21 hours above the normal. In the more central parts of London the aggregate sunshine was much in excess of the average. At Westminster the average is only 13 hours, but last month the figure was 27 hours. In the metropolitan suburbs there was nearly as much sunshine as at many of the resorts on the south coast, the respective figures at Kew, Greenwich, and Hampstead being 42 hours, 41 hours, and 35 hours. In the City the value was lower, the total being no more than 10 hours. The City average for December is, however, only seven hours. At Westminster, Greenwich, and Hampstead there were 15 sunless days, and in the City 21, but at Kew there were only 11. The extreme south-west evidently benefited by the main wind current being from the south-westward, the smoke and dust being driven further to the east and north-east. In Switzerland and the central countries of the Continent the weather was mild for the time of year. Severe frost was unknown, and on some days the warmth was almost abnormal. The Riviera expects more or less rain in December, and on this occasion it had a fair amount during the first fortnight. The dry intervals were,

however, very pleasant, with a clear sky and a rather high temperature, and during the latter half of the month the weather was generally very fine, with the thermometer rising to nearly 60° during the day and remaining at a fairly high figure at night. As a rule the Riviera was almost 10° warmer than the south coast of England. Biarritz was not so sunny as the Riviera, and on no less than 13 days there was a measurable quantity of rain. The temperature, too, had a greater range than on the Riviera, many of the days being warmer and some considerably colder. In Italy the earlier half of the month was more or less rainy, some of the falls being heavy and prolonged and a cloudless sky the exception. Subsequently the general condition underwent great improvement, and although the temperature was rather lower and the wind at times stronger than on the sheltered Riviera, the weather was extremely agreeable as a whole. Frost occurred occasionally at some of the inland places in the north, and the nights over a large portion of the country were often colder than in England. The Algerian coast and the islands of the Mediterranean experienced generally fine weather, broken rarely by rain and sometimes by strong, squally winds. A temperature of 70° in the shade was not very uncommon during the early days, and even towards the end of the month the thermometer remained rather high. At Paris the weather was very little better than in London. Rain fell on as many as 22 days and yielded a total of 3·9 in., while the sun shone for no more than 47 hours, and on 16 days it was not seen at all. As in this country, the main wind current in France was between west and south-west, and its average velocity high.

DEFINITIONS OF VINEGAR.

THE desirability of having an official definition for vinegar was represented to the President of the Local Government Board by a deputation of the London and County Vinegar Brewers' Association, Limited, last autumn. The Assistant Secretary of the Board has now replied to the effect that while the Board has not at present any power to frame definitions of vinegar or artificial vinegar, it is desirable to state its views on the subject. These views are as follows:—

General Standard for Vinegar.

Vinegar is a liquid derived wholly from alcoholic and acetous fermentations; it shall contain not less than four grammes of acetic acid (CH_3COOH) in 100 cubic centimetres of vinegar; it shall not contain arsenic in amounts exceeding 0·0143 milligramme per 100 cubic centimetres of vinegar, nor any sulphuric or other mineral acid, lead or copper, nor shall it contain any foreign substance or colouring matter except caramel. Malt vinegar is derived wholly from malted barley or wholly from cereals, the starch of which has been saccharified by the diastase of malt. Artificial vinegar.—Artificial vinegar is any vinegar, or substitute for vinegar, containing, or derived from any preparation containing, any added acetic acid which is not wholly the product of alcoholic and subsequent acetous fermentation. It shall contain not less than four grammes of acetic acid (CH_3COOH) in 100 cubic centimetres of the artificial vinegar. It shall not contain arsenic in amounts exceeding 0·0143 milligramme per 100 cubic centimetres of artificial vinegar, nor any sulphuric or other mineral acid, lead or copper, nor shall it contain any foreign substance or colouring matter except caramel.

It cannot be doubted that these "views" will largely guide magistrates in cases in which a liquid described as vinegar is in dispute; just as the recommendations of the Departmental Committee upon Preservatives and Colouring Matters in Foods are regarded as authoritative, although they have no real statutory force. If the principle of definitions or standards is recognised by the Local Government Board, as seems to be the case in its recent communication on the vinegar question, great developments should follow. We realise that the general subject requires careful handling, but it would be more satisfactory if instead of official "views" or "recommendations" the statutes of the land provided a very definite line to go upon. As things are, the expression of "views" by the Local Government Board or the drawing up of "recommendations" by a Departmental Committee are apt to mislead our legal and judicial authorities besides the layman into thinking that these views and recommendations are sure ground upon which a decision will be based. The Local Government Board acknowledges that it has no power to frame definitions, but practically expresses an opinion as to what these definitions should be. That may be an awkward position for a Government department to take up.

THE MEDICAL DIRECTORY, 1912.

THE sixty-eighth annual issue of Messrs. J. and A. Churchill's Medical Directory[1] is now out. It shows a total increase of medical practitioners of 411 over last year, the entire number now being 41,053 disposed as follows: London 6480, provinces 17,735, Wales 1370, Scotland 3982, Ireland 2802, abroad 5364, Services 3320. As heretofore, the Directory contains an abstract of the principal laws affecting the medical profession, revised to date by Mr. W. Oliver Hodges, barrister-at-law. No reference, of course, could be made to the Insurance Act, as it was not an accomplished fact at the time of publication. There are the usual lists of the members of the General Medical Council and the Central Midwives Board, the holders of medical appointments to the King and the Royal Family, and of members of the medical profession on whom titular distinctions have been conferred. Mr. Norman Forbes contributes a gazetteer of the principal places of health resort, both British and foreign. Lists of officials of the Local Government Board and of the coroners of England and Wales, as well as of medical journals published in Great Britain, of Royal Commissions still sitting to deal with medical and public health questions, and of insurance offices follow. The Medical Directory fully maintains the reputation increasingly established through nearly seven decades.

A STUDY OF THE PAIN-SENSE IN THE PLEURAL MEMBRANES.

IT is well known that in some cases of pleurisy the pain is felt locally, while in others it may be referred, more especially in basal cases. An interesting experimental study of the pain-sense of the pleural membranes is recorded in the *Archives of Internal Medicine* of Dec. 15th, 1911, by Dr. Joseph A. Capps, of Chicago. It is known from anatomical investigations that the parietal pleura is innervated by the intercostal, sympathetic, and vagus nerves, while the visceral pleura is supplied by fibres from the pulmonary plexuses derived from the vagus and sympathetic nerves. The diaphragmatic pleura is supplied by the phrenics, and it has been shown by Cavalie that the last six intercostal nerves penetrate from 1 to 2 cm. into the margin of the diaphragm. Dr. Capps has studied the distribution of pain in 240 cases of pleurisy and pleuro-pneumonia, and in 75 cases of thoracocentesis he has attempted to explore the pleural surfaces with a long wire. In only 35 of these were the conditions favourable to free exploration, since a pleura covered with a thick exudate may obviously give no response to irritation. He finds that the visceral pleura is devoid of pain-sense. Irritation of the parietal pleura produces sharp pain that is accurately localised by the individual over the spot that is touched. It does not give rise to referred pain in the neck or in the abdomen. Irritation of the central portion of the diaphragm—viz., the part that is supplied by the phrenic nerve—sets up pain in the neck. Irritation of the periphery of the diaphragm—viz., the part supplied by the last six intercostal nerves—produces pain in the lower thorax, in the lumbar region, or in the abdomen. The neck pain produced by irritation of the

[1] The Medical Directory, 1912. London: J. and A. Churchill. Pp. xliv. + 1964. Price 14s. net.

central part of the diaphragm is a true referred pain. The afferent impulses reach the spinal cord through the fibres of the phrenic nerve and excite painful impressions in the skin and superficial tissues supplied by the third and fourth spinal segments. The maximum point of pain has a marked tendency to appear along the ridge of the trapezius muscle. The pains elicited by irritation of the peripheral portions of the diaphragm are also referred pains, being distributed over the thorax and epigastrium in areas corresponding to the dorsal segments from the seventh to the twelfth. Both with these pains and with the neck pain there are associated cutaneous hyperæsthesia and hyperalgesia. The distribution of the referred pains varies with the part that is touched and with the degree of irritation. The more intense it is the greater the tendency of the pain to spread down over the lower abdomen. When the posterior part of the diaphragmatic pleura is irritated the pain is most marked in the lumbar region. Irritation of the pericardial pleura was followed by pain in the neck similar in character to that induced by irritation of the central portion of the diaphragm. It is interesting to note that in a series of cases of diaphragmatic pleurisy, in some of which the diagnosis was confirmed by necropsy, pain was present in the lower thorax, abdomen, or lumbar region in the great majority, while in about half of the cases there was pain in the neck. This affords an interesting illustration of the practical value of Dr. Capps's observations, which demonstrate clearly the origin and nature of pleural pain, and explain the difficulties which not infrequently arise in the diagnosis of conditions immediately above and below the diaphragm. Dr. Capps further states that he has a few observations which tend to show that the phrenic and intercostal nerves supply the peritoneal surface of the diaphragm with pain-sense as well as the pleural. His observations merit very careful consideration, and are an important contribution to the study of pleurisy.

THE TREATMENT OF BURNS.

IN the *International Journal of Surgery* Dr. J. F. Alexander has reported an interesting investigation of the treatment of burns. Having the unusual opportunity of treating simultaneously 27 cases of burns of the first, second, and third degrees he made a comparative test of five methods. All the patients were injured in trying to escape from the second floor of a burning building, and nearly all presented burns of the face, arms, and chest. Varying but very extensive areas of skin were involved; in four cases duodenal ulcers occurred; all the patients recovered. Seven cases of burns of the first, second, and third degree were treated by the boric acid solution bath, 5 of same degrees by picric acid solution, 5 of the second and third degree by carron oil, 5 of the second and third degree by unguentine, and 5 of the third degree by ichthyol ointment (48 grains of ichthyol added to 2 drachms of olive oil and incorporated with enough lanolin to make three ounces). The boric acid baths were given for two to six hours and repeated at intervals of two to six hours. A little experience showed that the parts should remain three hours in the bath. In the second group of cases gauze was saturated with picric acid solution and covered with oiled paper. The gauze was kept continuously moist and the dressing was renewed every second or third day. The ichthyol ointment was applied to the burns and covered with gauze and then with oiled paper. In all cases the lesions were thoroughly cleansed with soap and water before any dressing was applied. If there was considerable destruction of skin peroxide of hydrogen solution was then applied. If the dressing adhered to the raw surface a few drops of this solution allowed to fall on the gauze quickly dissolved the inspissated material and allowed easy and painless removal. All exfoliated epithelium was removed. In burns of the first degree the picric solution gave much the best results, and in burns of the second degree perfectly satisfactory results. In spite of extensive areas of skin involved no symptoms of picric acid poisoning were observed. In some cases the urine was darkened, but this condition soon cleared up under the administration of magnesium sulphate. The boric acid baths gave the best results in burns of the second degree and the ichthyol ointment in burns of the third degree.

CAVIARE.

IN spite of the esteem which caviare enjoys we have known it to be regarded by medical men as oily, indigestible, and unwholesome. We are inclined to dispute the accuracy of this view, having regard to the peculiar character of the constituents which the roe of the sturgeon contains. Numerous analyses have from time to time been made and the composition of caviare when averaged appears to be as follows:—Water, 50·92 per cent.; protein, 27·92 per cent.; fat, 13·59 per cent.; and mineral salts, 7·57 per cent. It differs sharply from the flesh of fish by containing a much larger quantity of fat. Moreover, this fat contains the peculiar oily phosphorus compound known as lecithin, which is a stimulant to metabolism affecting favourably the processes of nutrition. Caviare is, in fact, highly nutritive, and its digestibility has been determined, the time taken for its absorption being relatively short. If there is anything to be said unfavourably of caviare it is that its constituents err slightly on the side of "richness." The proteins of caviare contain a good deal of nuclein, and physiological experiments have shown that nuclein is a source of uric acid. The same is true, however, of sweetbread, kidney, *foie gras*, and these delicacies share with caviare the drawback of prohibition for persons of a gouty disposition. Like most foods with a peculiarly attractive and delicate flavour, caviare is expensive, and this fact holds any important consumption of it in check. It may be added, however, that caviare differs but a very little in composition from the much more familiar milt of the herring or the bloater roe. Bloater roe, like caviare, is rich in lecithin, though we are not prepared to assume that a measured course of bloater roe would have the same favourable effects in neurasthenia and in disturbances of nutrition generally as are obtained by administering the isolated fatty phosphorus compound.

THE RELATIONSHIP OF TUBERCULOSIS TO ACCIDENT AND INJURY.

IN another column we publish an address by Dr. W. C. Bosanquet on the relationship of tuberculosis to accident and injury. This is a subject which has claimed considerable attention during the past few years, mainly on account of its importance in connexion with the Workmen's Compensation Act. There is, unfortunately, a tendency on the part of workmen to try to attribute any illness to an accident, with the result that numerous cases are tried under arbitration which have no sound foundation in fact, and the time of the court is wasted, and the masters or the insurance companies are put to large needless expense. It is not denied that direct infection with tubercle bacilli may take place; numerous instances are on record. Further, many authorities maintain that tuberculosis of joints may follow injury, and Dr. Bosanquet quotes the French military surgeons who maintain that the majority of cases in their army in which amputation of the foot has to be carried out for tuberculous disease are attributable to old sprains. Instances of tuberculosis of the lungs following injury to the chest have been recorded, but in most of the cases it is not absolutely clear that the tuberculosis was

produced by the injury. It has also been suggested that in regard to pulmonary tuberculosis the accident may stir into activity a latent or quiescent lesion. To deny such a possibility would be difficult, but it is at least doubtful whether such a sequel could be proved. On the other hand, when active disease is present cases have been recorded in which an accident has apparently aggravated the disease. In a legal case, however, when damages are claimed on such a ground, the time that elapsed between the accident and the alleged aggravation would have an important bearing on the facts. Dr. Bosanquet remarks that if it were claimed that an injury and its resultant shock had so depressed a healthy person's resistance that he subsequently fell a victim to tuberculosis of the lungs considerable doubt would arise. We are acquainted with a case in which a widow of a deceased workman made a claim of this nature. The man sustained a Pott's fracture and died some nine months afterwards from pulmonary tuberculosis. For the woman it was suggested that the accident had so lowered the man's resisting power that he had become tuberculous. A medical assessor was sitting with the judge and the case was stopped without the defendants being called upon to reply. The occurrence of such legal cases by themselves cause the subject of "traumatic tuberculosis," as it is sometimes called, to be an important one, and many problems are involved which merit close attention and study.

THE CYTO-ARCHITECTONIC STRUCTURE OF THE CEREBRAL CORTEX [1]

WITHIN the last few years, owing largely to the researches of A. W. Campbell in this country, and of Brodmann and the Vogts in Germany, immense strides have been taken towards the perfecting of our knowledge of the structure of the cerebral cortex; and as this knowledge is sure to prove, indeed has already proved, to be of the first importance as a key to the pathology of certain mental and nervous states, it is well for the physician who is interested in the scientific side of his profession to have an intelligent idea of the progress that has already been made. It was known years ago, of course (since the researches of Bevan Lewis), that the cerebral cortex varied in thickness and in naked-eye and microscopical characters in different areas, but incompleteness of knowledge led invariably to confusion of thought until the subject was tackled afresh in its entirety, and with the aid of comparative anatomy, by the investigators whose names have been given above. Basing their work on the examination of transverse sections of the cortex from all its different parts, cut in series, they have definitely established the following first principle—viz., that the cerebral cortex is everywhere stratified, i.e., its cells are arranged in layers. In mammals the fundamental type of stratification is the six-layer type. By inversion, division, or diminution there may be derived from this type other varieties, to be referred to subsequently. The six layers, from without inwards, are described as (1) the zonal layer; (2) the external or outer granular layer; (3) the pyramidal layer; (4) the internal or inner granular layer; (5) the ganglionic layer; and (6) the multiform layer, according to the terms employed by Brodmann. Layers 1 and 6 are constant in man and the mammals generally, whereas layers 2 and 4 are very inconstant, and are frequently absent in man in certain areas of the cortex; layers 3 and 5 are also variable, but to a less extent than the preceding. Brodmann has also shown that this six-layer type may be present in the fœtus in parts of the cortex where at a later stage variation sets in, and that the rate of development of the six layers is not the same for all divisions of the cortex. The next point is that there are certain parts of the cortical surface where this six-layer type is not found, even in the embryo, constituting, roughly speaking, about one-tenth of the cerebral surface, nine-tenths being normally six-layered. Further, there are areas where during embryonic evolution the six-layered cortex becomes considerably modified, by augmentation or diminution of the number of layers. These areas take up about one-fourth of the cerebral superficies, and are of great importance, for they correspond to well-known physiological areas. Among them may be mentioned the visual area round the calcarine fissure in the occipital lobes, the motor area in front of the fissure of Rolando, certain parts of the frontal lobes, and the cortex of the island of Reil. In the calcarine area, for instance, the fourth layer is subdivided into three: in the motor area the fourth layer is awanting, while the giant pyramidal cells of Betz appear in the fifth layer, and so on. In this way it becomes readily understandable that the cerebral cortex can be mapped out into areas just like a geographical chart, each area corresponding to a particular type of cyto-architectonic arrangement. It is true, no doubt, that in the present state of our knowledge many of these areas are not of definite clinical interest, but some certainly are. Brodmann has distinguished 48 different regions, and it is a remarkably interesting fact that two of them are without homologue in the whole mammalian series—viz., the area corresponding to Broca's convolution and the area corresponding to the posterior end of the upper temporal convolution. These areas are a speciality, so to speak, of man, and naturally they may be taken to be of significance in connexion with the development of the faculty of speech. There is reason to suppose that not a few mental diseases have for their anatomical basis some disturbance, as yet not fully recognised, of the structure of the cortical stratification, and this is a pathological field on which investigation is only commencing. The belief, however, that in the prosecution of research along the lines sketched above, and based on the splendid work of Brodmann and others, results of far-reaching importance will sooner or later be attained, seems amply justified by the progress that has already been accomplished, of which the recent Goulstonian lectures of Dr. J. Shaw Bolton afford convincing evidence.[2]

[1] See, in particular, a recent paper by Dr. Ladame, of Geneva, in the *Revue Neurologique*, Nov. 30th, 1911.

THE MEDICAL LIBRARY ASSOCIATION OF AMERICA.

THE first two numbers of the *Bulletin of the Medical Library Association*, of America, edited by Dr. John Ruhräh and Miss M. C. Noyes, have been forwarded to us. This well-printed journal is worthy the consideration of the profession here, and of all those who take an interest in medical libraries, medical education, or the bibliography of medicine, surgery, and the kindred sciences. In a prefatory note the purposes of the *Bulletin* are briefly outlined as being primarily a means of communication between members of the association and a medium for the publication of lists of "wants" and of books and journals for exchange. In addition to this, at least one article on the work of medical libraries will be published in each issue of the journal. The first of these is from the accomplished pen of Dr. John H. Musser, president of the association. It is the record of his address, delivered at Atlantic city in May last. Dr. Musser reviews the work of the association and its finance, now flourishing under the management of an experienced treasurer. He further makes the satisfactory announcement that he was enabled, during the past twelvemonth, to hand to the association a card catalogue of the important books published in

[2] THE LANCET, vol. i., 1910, pp. 905, 980, 1047, 1077.

England, France, Germany, and Italy in the course of the past three years. "Members of the association," he continues, "can secure from the exchange titles of books on particular subjects in their respective languages." This is as it should be; a library association may be said to be justifying its existence when it can do this adequately. In the United States and Canada we gather that medical libraries are much of a size—that is to say, there are many medical collections scattered throughout those great countries which have all of them much the same equipment and resources. Here in Great Britain and Ireland matters are somewhat different. We have a few—a very few—preponderant libraries, and a number of small ones, and when the large libraries are asked to coöperate with the little ones cases arise in which, in vulgar parlance and so far as the large libraries are concerned, it is "all give and no take." The list of headings ("classification used at the Library of the College of Physicians, Philadelphia"), published in *Bulletin* No. 2, is valuable for purposes of reference. It is an ideal classification. That we on this side of the Atlantic use a somewhat simpler system is chiefly owing to the fact that we began the work of classifying many years ago—in the dark ages of library existence. Our system works well here, but the American system is none the less admirable.

THE PRESENT ASPECT OF SOME CANCER PROBLEMS.

THE opening lecture of the year at the Medical Graduates' College and Polyclinic was delivered by Dr. E. F. Bashford on Jan. 8th on the Present Aspects of Some Cancer Problems. In concluding, Dr. Bashford emphasised that up to the present all the methods which had been found efficacious in preventing the grafting and growth of carcinoma or sarcoma in normal animals had as yet no bearing whatsoever upon the treatment of the disease, but only upon the biology of cancer. All these methods, when applied to transplanted tumours already established, if they had any effect at all, produced inconstant results which could not be reproduced again at will. When applied to spontaneous cancer in mice they were as yet devoid of all therapeutic value, as the pictures exhibited showed. Similar remarks could also be applied to other suggested methods of treatment—e.g., by radium, which was found to cure certain transplanted tumours by Apolant in 1904, and by Bashford, Murray, and Cramer in 1905. This effect was obtained only for certain tumour strains and was not constantly obtained even in the same strain at different times. Toxic doses of adrenalin had been shown in 1905 by the latter authors to assist in the disappearance of transplanted tumours, and Reichert in 1909 had confirmed this observation; adrenalin was, however, as inconstant and unreliable as radium. Sera of different kinds had been found completely inactive. The possibilities of active immunisation lay entirely in the future, and mainly for this reason, that when healing occurred spontaneously, either in a transplanted or in a spontaneous tumour, whether a change in the animal was of moment or not, it had been satisfactorily demonstrated that local conditions obtaining in the tumour cells themselves played the determining rôle. Their elucidation was necessary if spontaneous healing was to be imitated experimentally. The extreme rarity of complete healing of spontaneous tumours required to be borne in mind in estimating both the difficulties of the investigation and its therapeutical possibilities. On a basis of the careful following of the clinical course of almost 1000 spontaneous tumours in mice, Dr. Bashford estimated attempts at healing, either partial or complete, at not so high as 1 per cent. In conclusion, he referred to some highly suggestive experiments carried out by A. von Wassermann in Berlin.

Dr. Bashford said: I returned from Berlin yesterday where I have been for some time on matters unconnected with cancer, but being there I considered it my duty to obtain personal experience of Wassermann's work, and he generously placed all his knowledge at my disposal. By following a line of thought inseparably associated with the name of my respected teacher—Ehrlich—Wassermann conceived the possibility of making a direct attack upon the cancer cell by approaching it through the blood stream. His reasoning was that since the cancer cells were growing rapidly their oxygen requirement would be very great—i.e., in Ehrlich's sense there would be a differential between the avidity for oxygen of the tumour cells and the rest of the cells of the body. The tumours would be very susceptible to anything which interfered with their supply of oxygen. Without going into details the problem resolved itself into how to convey selenium not only into the neighbourhood of the cell, but, if possible, also into the cell substance. After testing some hundreds of preparations it was found possible to do this by means of eosin. The idea of handing on such an element as selenium by means of such a dye as eosin could hardly have occurred to one not trained in the Ehrlich school as Wassermann has been, and its fruitfulness was at once seen. The pink solution of the eosin-selenium combination when injected in the venous system of a tumour-mouse at once colours the skin pink, but in a few hours the colour disappears from the surface of the body, and if the mouse is killed and examined it is found that the tumour alone is deeply stained. After repeated injection, if the mouse survive the tumour disappears in accordance with an orderly sequence of events. By this method Wassermann has achieved more than can be claimed for any of the other methods I have described to you, since the result is both constant—i.e., under given conditions can always be obtained—and equally efficacious when tested on spontaneous tumours. But the method is only in its infancy, and we know how radium and other agents have in the past had the aggravating property of giving the best results at the beginning. Still, it would be unfair of me to offer any criticism at this stage, for Wassermann has himself published ample warning. He states that the substance is a dangerous poison. In an experiment Wassermann and Keysser performed for my instruction it killed four out of six mice, but of the two that survived both were cured, and this is the inevitable result if the mice can withstand the treatment. The substance is difficult to prepare and its exact constitution is not yet known, but as in the case of all purely chemical problems these are difficulties laboratory skill and patience will speedily overcome. Wassermann does not claim to have found a cure for cancer, but merely to have demonstrated that what was previously deemed impossible has been demonstrated as a fact—viz., that a chemical substance can be prepared which when injected into the blood stream has an elective affinity for tumour cells injuring and killing them while sparing the rest of the body. To all who can appreciate the significance of this step forwards it will appear that the possibilities of following up this clue open up one of the most hopeful prospects as regards our ultimately being able to treat the disease in man. Great patience will, however, be necessary, new knowledge of the cancer cell and new applications of biological methods may be required to heighten the susceptibility of the tumour cells to interference with the oxygen supply. What is efficacious in a mouse may not work in a rat, rabbit, dog, or cow, and in any case no application to man will be possible until a less toxic preparation can be produced, and a more extensive application has been made to spontaneous tumours of varied nature. Nevertheless, I feel bound to admit the importance attaching to Wassermann's experiments.

THE annual dinner and smoking concert of the South Wales Mounted Brigade Field Ambulance, R.A.M.C. (T.), took place recently at the Imperial Café, Hereford. Lieutenant-Colonel J. R. I. Raywood, the officer commanding, presided, and was supported by Captain Griffiths, R.A.M.C., on a thoroughly successful occasion. The work done by the unit in 1911 included an Easter camp at Ledbury, annual brigade training at Builth, and camp at Carnarvon. Three officers and 18 non-commissioned officers and men attended special courses at the Royal Army Medical Corps School of Instruction, Cardiff, and one officer and three men the Army Service Corps Depôt, Manchester. The strength of the unit is 115 non-commissioned officers and men and four officers. The training this year is at Porthcawl, South Wales.

THE PRESENT POSITION OF ANTI-MALARIAL METHODS IN INDIA.

IT has been recently stated that malaria causes more sickness and mortality in India than any other disease. The late Sanitary Commissioner with the Government of India calculated that more than a million deaths from endemic malaria occur in ordinary years, and that in particular years when malaria epidemics arise this mortality may be well-nigh doubled. As malaria is not usually a very fatal disease this enormous number of deaths must represent a vast amount of non-fatal sickness, giving rise to a great deal of suffering and resulting in considerable economic loss to the State.

Efforts in the Past.

In the past strenuous efforts have not been wanting to prevent the ravages of this formidable malady in India, reliance having been placed hitherto mainly upon the use of quinine both as a curative and as a prophylactic agent. Under Government auspices the cultivation of the cinchona plant has been greatly extended, and this has led to a large reduction in the price of quinine, which has thus now become obtainable even by the poorest classes in India. But it is well known how difficult it is to secure the regular and systematic taking of quinine by natives, and even by Europeans sometimes, in malarious districts. It is true that better results are found in prisons and other institutions, or among bodies of men under discipline, but these form only a fraction of the great number that need protection against this disease. It may, therefore, be said generally that notwithstanding the efforts which have been made in the past, with the help of quinine, the ravages of malaria in India have not been materially reduced or greatly alleviated.

Anti-mosquito Measures.

It is now about 14 years since Sir Ronald Ross, then an officer of the Indian Medical Service, working at Secunderabad, discovered the mode in which the protozoal parasite of malaria is transmitted from man to man through the agency of a species of water-breeding mosquitoes, the Anophelinæ; and this discovery at once suggested new methods of fighting the disease by measures to extirpate the incriminated mosquitoes and destroy their breeding-places. Major works for draining swampy land and marshes and minor operations for filling up pools and hollows or coating the surface of the standing water with crude oil were strongly advocated. But these proposals did not apparently find much favour at the time in official circles, objections being raised mainly on the score of the great expense which the measures would entail, and also on the ground of their impracticability and unsuitability to the special circumstances of a country like India.

In 1901 an experimental trial of the new methods was initiated at Mian Mir, but in 1909 a Government Commission, which had been appointed to investigate the results, gave an unfavourable report upon them. This test, however, in the opinion of Sir Ronald Ross, was hardly a fair one, and in public he has characterised it as having been "ill-judged and ill-conducted." It is beyond doubt that the Mian Mir experiment was the means of hindering, for a time at least, the adoption of mosquito destruction as an important antimalarial measure in India.

Imperial Malaria Conference.

The new methods have already been successfully tried in some other countries, and the facts associated with these instances were brought to the notice of the Indian Government, which in 1909 summoned an Imperial Malaria Conference to meet at Simla, where after due discussion a series of recommendations was passed. These included the need for establishing a permanent organisation to direct a campaign against malaria in India and to undertake scientific investigations; the advisability of carrying out measures for the extirpation of mosquitoes; the continuation of efforts to secure a wide distribution of quinine in the affected districts; and lastly, the need for educating the native population in the main facts about malaria. Since this conference was held a change has seemingly taken place in the official attitude towards the modern methods of fighting malaria. This is noticeable in the address which the present Director-General of the Indian Medical Service, Sir C. P. Lukis, K.C.S.I., gave at Bombay in November last before a malaria conference and in other recent official statements. A central scientific committee for the study of malaria in India, with provincial committees and a general committee, have now been set up to organise the anti-malarial campaign. In order to provide the necessary special training in modern methods of malarial research a central malarial bureau has been established at Kasauli, with a museum, laboratory, and reference library, and with a new journal called *Paludism* as its organ, to spread the knowledge acquired by the bureau and to publish reports and other useful information. At Amritsar also an institute has been founded and a laboratory opened for special malarial research and for purposes of instruction. Already 48 officers and subordinates have gone through special courses of training, and at the present time most, if not all, of the Indian provinces are provided with the services of expert officers, who are aided by an adequate staff devoting their whole time to anti-malarial work.

Measures now being taken in Various Provinces.

Sir C. P. Lukis furnished a statement to the Imperial Legislative Council at Simla last September, in which he summarised the measures in progress against malaria in the provinces. In Madras Presidency, for example, in addition to the appointment of a special staff under expert direction, the following practical measures are being carried out—viz., the introduction of effective drainage in different places, the filling up of useless ponds and pits, the prohibition of "wet cultivation" in the proximity of dwellings, the destruction of mosquito larvæ by petrolage, along with the free distribution of quinine. Almost identical measures are being taken in the Presidency of Bengal, where, in addition, an important proposal from the local government is under consideration for a special engineering establishment to deal with drainage schemes. As a further indication of the change which has occurred in the official attitude towards mosquito reduction we may mention the case of the city of Bombay, where malaria has been of late years increasing in amount, and where in consequence Dr. C. A. Bentley, a well-known expert, has been investigating the causes of this increase. In his report he pointed out that the breeding-places of the anophelines must be destroyed, and it is gratifying to learn that the provincial government has intimated to the municipality that if vigorous measures are taken by them on the lines suggested by Dr. Bentley they will be assisted with a grant of 1 lakh of rupees from provincial revenues.

The Punjab is a special sufferer from epidemics of malaria, and Major S. R. Christophers, I.M.S., a member of the Central Committee for the Study of Malaria in India, who has made inquiry into their cause, has pointed to the flooding of certain areas, and especially of low-lying land near the banks of rivers, as an important factor in the production of these epidemics. Works for the prevention and control of these floods are recommended, and are at present under the consideration of the Government. Lastly, we may draw attention to an important statement made by Sir C. P. Lukis to the effect that in the fiscal year of 1910–11 a special non-recurring grant of no less than 57 lakhs of rupees was made from Imperial revenues for expenditure, chiefly on drainage schemes likely to prove of benefit to towns affected by malaria. The above gives a summary of much that is already known to our readers, while in THE LANCET of Oct. 17th, 1911, we drew attention to the Indian Research Fund, one of the objects of which is to provide means for carrying out various methods by which the people of India may be educated in subjects of elementary hygiene and domestic sanitation, and in the knowledge of how they may best protect themselves against malaria and other diseases.

New Era Inaugurated.

From what we have said it is apparent that at no previous time has so much been done to check the disease and to utilise the most modern methods for reducing the widespread ravages of malaria in India. A new era has thus been inaugurated, the prophylaxis by means of quinine being now reinforced by much-needed major and minor works instituted with a view of reducing mosquitoes and destroying their breeding places. These efforts, we believe, must lead to a marked diminution of the disease, and as a result should lead to a decrease in the human suffering and economic loss which have for so long afflicted our Indian Empire.

MEDICINE AND THE LAW.

Death from a Wasp's Sting under the Workmen's Compensation Act.

A CLAIM for compensation by a widow named Potter, in which Judge Mulligan, K.C., gave judgment recently in the Downham county court, gave a fresh illustration of the difficulty of determining what constitutes an accident arising "out of and in the course of" a workman's employment. The deceased husband of the applicant was engaged as a waiter at an entertainment following a wedding in a country district, and on the day following the wedding a dinner was being prepared for the villagers, the deceased man Potter being in the service of the caterer, Mr. C. W. Smith, who supplied the refreshments. The remains of champagne in the emptied bottles, and of food provided for the first day, had attracted a number of wasps, and on the second day when Potter with his companions had stopped working in order to eat their luncheons in the tent, he suddenly exclaimed, "I am done," and removed a dead wasp from his tongue. He had been stung and he died an hour later, a post-mortem examination, of which evidence was given at the inquest, showing that he had suffered from valvular disease of the heart. The verdict of the coroner's jury, which was put in as evidence on the application of the widow for compensation, ascribed death to "Heart failure caused by shock consequent upon the sting of a wasp on the tongue—Accidental death." The county court judge held that death was due to the accident of the sting and that "the fact that the man's condition predisposed him to succumb to such an accident was immaterial, and the medical alibi—valvular disease of the heart—in this case could not prevail." He was also satisfied that the accident occurred in the course of the employment of the deceased. This left the question whether it arose out of that employment, and as to that he had to ask himself whether the accident resulted from a risk reasonably incidental to the employment. He found as to this as a matter of fact that the deceased, by reason of the work that he had to perform in the tent, was exposed to an extraordinary and peculiar danger of being stung by wasps, and that his death was the result of a risk reasonably and peculiarly incidental to his employment. He pointed out that the question was one to be decided upon the facts of the particular case before him, and quoted from the Lord Chancellor's judgment in the case of Kitchenham (1911, Appeal Cases, 417) to the effect that the words "out of and in the course of the workman's employment" admit of inexhaustible varieties of application according to the nature of the employment and the character of the facts proved. The Lord Chancellor said with regard to this "the facts in different cases are infinitely different, and if we (the House of Lords) were upon each argument to discuss them and to differentiate one from another, judgments of courts of law would be interminable and would lead rather to confusion than to enlightenment." The case of Potter *v.* Smith would appear to be one likely to lead to an appeal, but if the man was provided with food by his employers as one of the conditions of his service, and it was food which, owing to circumstances, contained wasps, or if he was expected to eat his luncheon in a place infested by wasps, it would seem not unreasonable to say that the accident of being stung arose out of the employment. The expression, however, used by Judge Mulligan and quoted above, "a medical alibi," as applied to the proof of the existence of valvular disease of the heart is not easy to understand. An alibi that fails is usually an incident in a trial discreditable to the witnesses who appear in support of it. There certainly, however, can be nothing discreditable in giving evidence of the presence of a disease without which death would not have taken place, or in an advocate, as distinct from the medical witnesses, laying stress upon it on behalf of his client. Not to prove its existence, either at the inquest following the death or in an inquiry such as that held in the county court, would be to suppress evidence of an essential fact connecting the death with the accident of the sting.

The Death of Mr. Terence Barclay.

It has been stated in the newspapers that an inquest has not been considered necessary in the case of Mr. Terence Barclay, who was mauled by a lion cub kept as a pet, dying from subsequent blood poisoning. The occurrence was of a very unusual and extremely tragic nature, and the relatives of the deceased are entitled to warm sympathy in their loss. To them, no doubt, the avoidance of an inquest was a welcome relief from attendance at an inquiry which would have increased their pain. At the same time, we are puzzled as to why an inquest should have been dispensed with in consequence, according to the information before us, of the acceptance of a certificate of the cause of death. No doubt the medical man or medical men who attended the deceased after he received his wounds were able to state accurately in a certificate the cause of his death, and we are not aware that there could be any objection to this being done. It, however, could not by itself free the coroner from the obligation to hold an inquest where there is reasonable cause to suspect that a violent or an unnatural death has occurred, and it can hardly be suggested that the death of Mr. Barclay, the main facts attending which have been described in the public press too fully to need recapitulation, was in the ordinary acceptance of the term a natural one. On the other hand, so far as the reported facts are concerned, the case was one which on public grounds might well have been inquired into in some detail. The keeping of dangerous wild animals in the grounds of a country gentleman's house cannot be a safe proceeding unless extreme care is exercised to ensure that the confinement imposed is such as to preclude the possibility of escape, and to prevent as far as possible danger to their immediate owners and to others. An inquest is not held with a view only to the punishment of those, if any, who may be criminally responsible for a death, but in order that by a full inquiry into unnatural deaths the public may be protected or reassured according to the circumstances of the individual case. The death to which we have referred will, however, no doubt, serve as a warning to those who wish to rear young lions, or other naturally fierce animals, of the danger of so doing. The gradual growth of such beasts may disguise the development of their adult tendencies and of their mature physical strength, but those tendencies will probably supervene, and combined with a strength of which neither they nor their masters may be aware, will one day render them dangerous possessions.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns, having an estimated population of 16,157,797 persons in the middle of the year 1911, 6673 births and 4881 deaths were registered during the week ending Dec. 30th, 1911. The annual rate of mortality in these towns, which had been 15·2, 16·4, and 15·9 per 1000 in the three preceding weeks, declined to 15·7 in the week under notice. During the 13 weeks of the fourth quarter of last year the mean annual rate of mortality in these towns averaged 14·7 per 1000, and was 0·4 per 1000 in excess of that recorded in London during the same period. The annual death-rates in the 77 towns in the week under notice ranged from 4·9 in Hornsey, 7·7 in Hastings and in Halifax, 9·1 in Ipswich, and 10·9 in Rhondda and in Merthyr Tydfil, to 21·6 in Bootle, 22·0 in Burnley, 22·2 in Bury, and 23·1 in St. Helens.

The 4881 deaths from all causes in the 77 towns were 30 fewer than the number in the previous week, and included 290 which were referred to the principal epidemic diseases, against 305 and 291 in the two preceding weeks. Of these 290 deaths, 76 resulted from whooping-cough, 66 from measles, 54 from infantile diarrhœa, 53 from diphtheria, 21 from enteric fever, and 20 from scarlet fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 0·9 per 1000, against 1·0 and 0·9 in the two preceding weeks.

The deaths attributed to whooping-cough, which had steadily increased from 16 to 52 in the eight preceding weeks, further rose to 76 in the week under notice, and caused the highest annual death-rates of 1·1 in Birmingham, 1·6 in St. Helens, 1·7 in Derby, 1·9 in Great Yarmouth, and 2·8 in Walsall. The deaths referred to measles, which had been 52, 71, and 70 in the three preceding weeks, declined to 66 in the week mentioned; the highest death-rates from

this disease were 1·3 in Norwich and in Stoke-on-Trent, 2·0 in Nottingham, and 3·9 in Burnley. The 54 fatal cases of infantile diarrhœa were 1 fewer than the number in the preceding week, and included 18 in London and its suburban districts, 5 in Birmingham, 4 in Liverpool, and 4 in Manchester. The deaths attributed to diphtheria, which had risen from 57 to 67 in the four preceding weeks, declined to 53 during the week, and of this number 17 were registered in London and its suburban districts, 4 in Leeds, 3 in Wallasey, and 3 in Manchester. The deaths referred to enteric fever numbered 21, being 1 less than the average in the seven preceding weeks; 4 deaths were recorded in Leicester, 3 in Sheffield, 2 in London, and 2 in Hull. The fatal cases of scarlet fever, which had been 27 and 25 in the two preceding weeks, further fell last week to 20, and included 3 in London, and 2 each in Norwich, Aston Manor, Coventry, Liverpool, and Bradford.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily decreased from 2213 to 1912 during the six preceding weeks, were equal to 1914 on Dec. 30th; 162 new cases of this disease were admitted to these institutions during the week, against 241, 224, and 182 in the three preceding weeks. These hospitals also contained on the date mentioned 1308 cases of diphtheria, 233 of whooping-cough, 105 of measles, and 77 of enteric fever, but not one case of small-pox. The 1325 deaths from all causes in London were 38 fewer than the number in the preceding week, and included 332, which were referred to diseases of the respiratory system, against numbers steadily increasing from 170 to 390 in the eight preceding weeks.

The deaths attributed to different forms of violence in the 77 towns, which had declined from 201 to 185 in the three preceding weeks, further fell to 170 in the week under notice, and 461 inquest cases were registered. The causes of 60, or 1·2 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, and in 48 other smaller towns. The 60 uncertified causes of death last week included 9 in Birmingham, 8 in Liverpool, 6 in Gateshead, 4 in Preston, and 3 each in London, King's Norton, St. Helens, and Rochdale.

From the commencement of the current year the Registrar-General's weekly returns will relate to the 94 largest towns of England and Wales which at the recent Census contained populations exceeding 50,000 persons. The aggregate population of these towns in the middle of the present year is estimated to be 17,559,219 persons. During the week ending Jan. 6th 8657 births and 5152 deaths were registered in these towns. The deaths were equal to an annual rate of mortality of 15·3 per 1000, against 16·4, 15·9, and 15·7 in the former 77 towns during the three preceding weeks. The annual death-rates in the several towns ranged from 4·9 in Eastbourne, 5·2 in Hastings, 8·0 in Wakefield, 8·3 in Wimbledon, and 8·8 in Ilford, in Oxford, in Devonport, and in Middlesbrough to 19·5 in York, 19·7 in Enfield, 20·0 in Stoke-on-Trent, 20·7 in St. Helens, 21·3 in Preston, and 23·3 in Dudley.

The 5152 deaths from all causes in the 94 towns last week included 313 which were referred to the principal epidemic diseases, and of these 83 resulted from measles, 78 from whooping-cough, 57 from infantile diarrhœa, 49 from diphtheria, 24 from enteric fever, and 22 from scarlet fever, but not one from small-pox. The mean annual death-rate from these diseases last week did not exceed 0·9 per 1000 of the estimated population, and was equal to the rate in the 77 towns during the two preceding weeks. The highest annual death-rates from measles were 1·3 in Swansea, 1·4 in Warrington, 1·5 in West Bromwich, 1·8 in Salford, and 3·0 in Norwich; from whooping-cough, 1·2 in Newport (Mon.), 1·8 in Great Yarmouth, 1·9 in Dewsbury, 2·1 in St. Helens, and 3·9 in Walsall; and from infantile diarrhœa, 1·1 in Stoke-on-Trent and 1·2 in Hornsey. The 49 deaths attributed to diphtheria included 12 in London and its 14 suburban districts, 5 in Leeds, and 3 in Bristol.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily decreased from 2213 to 1914 in the seven preceding weeks, had further declined to 1845 on Saturday last; 193 new cases of this disease were admitted to these institutions during the week, against 224, 182, and 162 in the three preceding weeks. These hospitals also contained on Saturday last 1279 cases of diphtheria, 255 of whooping-cough, 116 of measles, and 65 cases of enteric fever, but not one of small-pox. The 1347 deaths from all causes registered in London during the week under notice were 24 in excess of the number in the preceding week, and were equal to an annual death-rate of 15·5 per 1000. During the 13 weeks of the fourth quarter of last year the average annual death-rate in London did not exceed 14·3 per 1000, and was 0·4 per 1000 below that recorded during the same period in the 77 large English towns. Of the 1347 deaths in London last week, 21 were attributed to measles, 17 to infantile diarrhœa, 14 to whooping-cough, 6 to diphtheria, 5 to enteric fever, and 3 to scarlet fever. The deaths referred to diseases of the respiratory system, which had been 390 and 332 in the two preceding weeks, rose again to 382 last week, and were 93 in excess of the number in the corresponding week of last year.

Of the 5152 deaths in the 94 large towns last week 194 were attributed to different forms of violence, and 455 were the subject of coroners' inquests. The causes of 45, or 0·9 per cent., of the deaths registered last week were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Bradford, Hull, Newcastle-on-Tyne, Nottingham, and in 69 other smaller towns. The 45 uncertified causes of death last week included 10 in Birmingham, 10 in Liverpool, 4 in Gateshead, and 3 in Darlington.

HEALTH OF SCOTCH TOWNS.

In Glasgow 399 births and 274 deaths were registered during the week ending Dec. 30th, 1911. The deaths were 1 in excess of the number recorded in the previous week, and were equal to an annual rate of 18·2 per 1000, against 18·4 and 18·2 in the two preceding weeks. During the 13 weeks of the fourth quarter of 1911 the annual death-rate in Glasgow averaged 17·9 per 1000, and was 3·6 per 1000 above the rate recorded in London during the same period.

The 274 deaths from all causes during the week mentioned included 36 which were referred to the principal epidemic diseases, against 31 and 38 in the two preceding weeks. Of these 36 deaths, 17 resulted from measles, 5 from diphtheria, 5 from diarrhœal diseases, 4 from whooping-cough, 3 from scarlet fever, and 2 from enteric fever, but not one from small-pox; these 36 deaths were equal to an annual death-rate of 2·4 per 1000. The deaths from measles, which had increased from 7 to 25 in the three preceding weeks, declined to 17 in the week under notice; the 5 fatal cases of diphtheria were 4 in excess of the number in the previous week. The deaths referred to diseases of the respiratory system, which had declined from 62 to 44 in the three previous weeks, rose to 54 in the week under notice. Thirteen deaths were attributed to different forms of violence, and 83 were recorded in public institutions. The causes of 10, or 3·6 per cent., of the deaths were not specified or not certified.

In Edinburgh 105 births and 95 deaths were registered in the week under notice. The deaths were 13 fewer than the number in the previous week, and were equal to an annual rate of 15·5 per 1000, against 15·1 and 17·6 in the two preceding weeks. The 95 deaths from all causes included 6 which were referred to the principal epidemic diseases, of which 4 resulted from diphtheria and 2 from measles; these 6 deaths were equal to an annual rate of 1·0 per 1000. The deaths referred to diseases of the respiratory system, which had averaged 18 in the four preceding weeks, declined to 12 in the week under notice. Three deaths were attributed to violence, and 44 were recorded in public institutions. The causes of 2, or 2·1 per cent., of the deaths were not certified.

The weekly returns issued by the Registrar-General of Scotland will, from the commencement of the current year, relate to the 18 largest Scotch towns, which at the last Census contained populations exceeding 30,000 persons. The aggregate population of these towns in the middle of the present year is estimated to be 2,182,400 persons. During the week ending Jan. 6th, 1037 births and 705 deaths were registered in these 18 towns; the deaths were equal to an annual rate of 16·9 per 1000, or 1·6 per 1000 above that recorded in the 94 English towns.

In the eight towns to which the Scotch return formerly related, the death-rate last week was equal to 17·4 per 1000, against 18·6 and 17·3 in the two preceding weeks. The annual death-rates in the several towns ranged from 3·4 in Partick, 11·6 in Kirkcaldy, and 13·2 in Govan, to 22·5 in Hamilton, 23·3 in Clydebank, and 24·7 in Greenock. The 705 deaths from all causes in the 18 towns included 83 which were referred to the principal epidemic diseases, and included 34 from measles, 13 from diphtheria, 13 from whooping-cough, 11 from scarlet fever, 8 from infantile diarrhœa, 2 from enteric fever, and 2 from typhus, but not one from small-pox. These 83 deaths were equal to an annual rate of 1·9 per 1000, or 1·0 per 1000 above that recorded in the 94 English towns from the same diseases. Of the 34 deaths from measles, 13 were registered in Glasgow and 9 in Aberdeen; 3 deaths from scarlet fever were recorded in Glasgow, 3 in Aberdeen, and 3 in Greenock; the 2 fatal cases of typhus occurred at Motherwell.

The deaths referred to diseases of the respiratory system in the 18 towns numbered 134, and 22 deaths were attributed to different forms of violence. The weekly return of the Registrar-General for Scotland no longer affords information as to the numbers of uncertified causes of death, or of deaths occurring in public institutions.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,149,495 persons in the middle of the year 1911, 560 births and 396 deaths were registered during the week ending Dec. 30th, 1911. The annual rate of mortality in these towns, which had been 20·9 and 18·2 per 1000 in the two preceding weeks, further declined to 18·0 in the week under notice. During the 13 weeks of the fourth quarter of last year the mean annual rate of mortality in these towns averaged 18·4 per 1000; while the death-rate in the 77 large English towns during the same period did not exceed 14·7 per 1000. The annual death-rates in the week under notice in the several Irish towns were equal to 19·9 in Dublin (against 15·3 in London), 16·9 in Belfast, 21·1 in Cork, 14·1 in Londonderry, 20·4 in Limerick, and 7·6 in Waterford, while in the 16 smallest of these Irish towns the death-rate did not exceed 18·6 per 1000.

The 396 deaths from all causes in the 22 Irish towns were 5 fewer than the number in the previous week, and included 34 which were referred to the principal epidemic diseases, against 35 and 39 in the two preceding weeks; of these 34 deaths, 10 resulted from whooping-cough, 7 from diarrhœal diseases, 6 from scarlet fever, 5 from diphtheria, 4 from measles, and 2 from enteric fever, but not one from small-pox. These 34 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·5 per 1000, and was 0·6 per 1000 above the mean rate from the same diseases in the 77 large English towns. The deaths attributed to whooping-cough, which had increased from 6 to 16 in the three preceding weeks, declined to 10 in the week under notice, and comprised 4 in Dublin, 3 in Belfast, and 3 in Lurgan. The deaths referred to diarrhœal diseases, which had been 11 and 4 in the two previous weeks, rose to 7 during the week, all of which were of infants under two years of age; 3 deaths were recorded in Dublin and 3 in Belfast. The fatal cases of scarlet fever which had been 3 and 4 in the two preceding weeks, rose to 6 in the week under notice, of which 5 were registered in Belfast and 1 in Dublin. The 5 deaths referred to diphtheria were 4 less than in the number in the previous week, and comprised 3 in Dublin and 2 in Belfast. Three of the 4 fatal cases of measles were recorded in Dublin, while the 2 deaths from enteric fever were registered in Dublin and Newry respectively.

The deaths referred to diseases of the respiratory system, which had been 105 and 83 in the two preceding weeks, rose to 85 in the week under notice. Of the 396 deaths from all causes in the 22 Irish towns 120, or 30 per cent., were recorded in public institutions, and 10 were attributed to different forms of violence. The causes of 22, or 5·6 per cent., of the total deaths during the week under notice were not certified either by a registered medical practitioner or by a coroner after inquest, while in the 77 English towns the proportion did not exceed 1·2 per cent.

In the 22 town districts of Ireland, having an estimated population of 1,157,014 persons in the middle of this year, 598 births and 413 deaths were registered during the week ending Jan. 6th. The annual rate of mortality in these towns, which had declined from 20·9 to 18·0 in the three preceding weeks, rose to 18·6 per 1000 in the week under notice. During the 13 weeks of the fourth quarter of last year the mean annual rate of mortality in these Irish towns averaged 18·4 per 1000, and was 3·7 per 1000 above the mean rate recorded in the 77 large English towns. The annual death-rates last week in the several Irish towns were equal to 23 3 in Dublin (against 15·5 in London), 17·2 in Belfast, 17 7 in Cork, 19·1 in Londonderry, 9·5 in Limerick, and 17·1 in Waterford, while in the 16 smallest of these Irish towns the death-rate did not exceed 13·3 per 1000.

The 413 deaths from all causes in the 22 Irish towns were 18 in excess of the number in the previous week, and included 29 which were referred to the principal epidemic diseases, against 39 and 34 in the two preceding weeks; of these 29 deaths 7 resulted from diphtheria, 6 from measles, 6 from diarrhœal diseases 4 from scarlet fever, 4 from whooping-cough, and 2 from enteric fever, but not one from small-pox. These 29 deaths from the principal epidemic diseases were equal to an annual rate of 1·3 per 1000; the death-rate from these diseases did not exceed 0·9 in the 94 English towns, while in the 18 Scotch towns it was equal to 1·9 per 1000. The 7 deaths attributed to diphtheria were equal to the average in the two preceding weeks, and comprised 4 in Dublin and 3 in Belfast. The deaths referred to measles, which had been 7, 6, and 4 in the three preceding weeks, rose last week to 6, all of which occurred in Dublin. Five of the 6 deaths from diarrhœal diseases, all of which related to infants under two years of age, were recorded in Dublin. The 4 fatal cases of scarlet fever, of which 3 were registered in Dublin, were equal to the average in the three preceding weeks. The deaths attributed to whooping-cough, which had been 16 and 10 in the two preceding weeks, declined to 4 last week, and included 2 in Belfast. The 2 fatal cases of enteric fever were recorded in Dublin.

The deaths referred to diseases of the respiratory system, which had been 83 and 85 in the two preceding weeks, further rose last week to 99. Of the 413 deaths from all causes in the 22 Irish towns 143, or 35 per cent., were recorded in public institutions, and 4 were attributed to different forms of violence. The causes of 15, or 3·6 per cent., of the total deaths during the week under notice were not certified either by a registered medical practitioner or by a coroner after inquest; in the 94 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeons: R. Hickson to the *Africa*; C. S. Woodwright to the *Minotaur*, additional, for sick quarters, Yokohama; J. E. Coad to the *Leviathan*, and for general staff duties; E. H. Hodnet de Courtmacsherry to the *Renown*; D. J. P. McNabb to the *Hercules*, and for general staff duties; R. Hill to R. M. Infirmary, Deal; and E. B. Pickthorn to the *Cressy*. Staff-Surgeons: J. Fullarton to the *Cressy*; H. W. M. Rees to the *Hawke*, for voyage out, and to the *Flora*; and K. H. Jones to the *Enchantress*. Surgeon R. F. MacMahon to the *Excellent*.

ARMY MEDICAL SERVICE.

Surgeon-General Sir Francis W. Trevor, K.C.S.I., C.B., K.H.S., is placed on retired pay (dated Jan. 1st, 1912).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors: Charles S. Smith, Arthur F. Carlyon, William C. Croly (dated Dec. 4th, 1911); Patrick H. Henderson, William M. H. Spiller, Archibald D. Jameson, Bernard B. Burke, Walter B. Fry, and Percy C. Douglass (dated Dec. 21st, 1911).

Lieutenant John Gilmour is seconded for service under the Foreign Office (dated Dec. 8th, 1911).

Surgeon-General A. T. Sloggett, C.B., C.M.G., principal medical officer of the Sixth (Poona) Division, has taken up duty as Principal Medical Officer, His Majesty's Forces in India, in succession to Surgeon-General Sir F. W. Trevor, K.C.S.I., C.B., retired from Jan. 1st. Lieutenant-Colonel

N. C. Ferguson, C.M.G., in charge of the Military Hospital at York, has been selected for the higher rate of pay under Article 317 of the Royal Warrant. Lieutenant-Colonel H. C. Thurston, C.M.G., at present serving at Aldershot, has been selected for appointment as Medical Officer to the Royal Military College, in succession to Lieutenant-Colonel C. C. Reilly, whose tenure of the appointment has expired. Lieutenant-Colonel F. J. Morgan, commanding the Station Hospital at Barrackpore, has been granted six and a half months' leave of absence home from India. Lieutenant-Colonel S. Westcott, lately in charge of the Military Hospital at Chakrata, United Provinces, has arrived home, tour-expired. Lieutenant-Colonel E. G. Browne has been selected for appointment to hold charge of the Military Hospital at Jullundur. Lieutenant-Colonel W. A. Morris, commanding the Station Hospital at Cawnpore, has been detailed as Senior Medical Officer in charge of the transport s.s. *Plassy*, leaving Bombay for Southampton on Jan. 11th. Lieutenant-Colonel R. L. R. Macleod has arrived home for duty from Aden on completion of his tour of foreign service.

Major H. B Fawcus, from Bloemfontein, has been selected to succeed Major C. F. Wanhill as Assistant Professor of Hygiene at the Royal Army Medical College. Major J. Hennessy, commanding the Station Hospital at Poonamallee, has been detailed for duty on board the transport s.s. *Dongola*, which left Bombay for Southampton on Dec. 28th. Major G. B. Riddick, at present serving at Maymyo, Burma, has been permitted by H.E. the Commander-in-chief in India to extend his tour of service by one year. Major R. C. Elliott has taken over charge of the Military Hospital at Jhansi. Major L. Way, from Cosham, has been appointed for duty with the Northern Army in India, and will be posted on arrival to the Seventh (Meerut) Division. Major L. P. More and Major W. A. Woodside have embarked for a tour of service in India. Major A. J. MacDougall, recently employed as Specialist Sanitary Officer at Ceylon, has been ordered to join the Irish Command, and on arrival will be posted to the Belfast District for duty.

Captain D. Ahern has been transferred from Alexandria to the Military Hospital at Cairo for duty. Captain H. T. Stack, from Londonderry, has taken up duty at Belfast. Captain J. E. Powell, from Rhayader Camp, has joined at Alderney. Captain H. H. J. Fawcett, from the Royal Victoria Hospital at Netley, has been posted to the Military Hospital at Maidstone. Captain E. M. Glanvill has been transferred from the Military Hospital at York to Leeds. Captain O. Ievers has arrived home from South Africa for duty on the Home Establishment. Captain A. F. Weston has embarked for a tour of service at Jamaica. Captain M. B. H. Ritchie has been granted six months' leave of absence home from India. Captain C. Scaife has been appointed Specialist in the Prevention of Disease, Bombay Brigade, and placed in charge of the Brigade Research Laboratory at Colaba. Captain D. T. McCarthy has been transferred from the Eighth (Lucknow) Division to Burma for a tour of service. Captain W. C. Nimmo, from Chakrata, has taken up duty at the Station Hospital, Meerut. Captain C. T. Edmunds, from Cherat, has been detailed for a course of instruction in radiography at the X Ray Institute, Dehra Dun, United Provinces. Captain G. F. Dawson, from Meerut, has been appointed to the Station Hospital at Chakrata. Captain D. de C. O'Grady has been transferred from Barian to Peshawar for duty at the Military Hospital. Captain D. M. Corbett, from Dalhousie, has taken up duty at Multan.

Lieutenant R. C. Priest, on arrival in India for a tour of service, has been posted to the Eighth (Lucknow) Division, instead of the Fifth (Mhow) Division as previously directed. Lieutenant R. C. G. M. Kinkead, at present serving at the Military Hospital, Queenstown, has been placed under orders by the War Office for service in South Africa, and will embark about the end of January. Lieutenant R. C. Paris, from the Royal Victoria Hospital at Netley, has embarked for duty in India.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel G. F. W. Ewens has been appointed Superintendent of the Punjab Lunatic Asylum at Lahore, on return from leave of absence. Lieutenant-Colonel W. Westropp White has received an extension of his leave of absence home from India from the Right Honourable the Secretary of State. Lieutenant-Colonel R. B. Roe, principal medical officer of the Abbotabad and Sialkot Brigades, has been selected for appointment as Principal Medical Officer of the Karachi Brigade. Lieutenant-Colonel P. C. Strickland has arrived home on leave of absence from India.

Major R. P. Wilson, officiating civil surgeon at Cuttack, has been granted privilege leave, combined with furlough, for 15 months. Major H. E. Berry has been appointed Specialist in Ophthalmology to the Fifth (Mhow) Division. Major J. W. Cornwall has arrived home on leave of absence from Madras Presidency.

Captain B. Higham has been selected to officiate as Deputy Sanitary Commissioner of the Central Registration District, Bombay. Captain O. A. Sprawson has been selected for appointment as Professor of Physiology at the Lucknow Medical College. Captain A. W. Overbeck Wright, officiating superintendent of the Central Prison at Agra, has been appointed to officiate as Superintendent of the Lunatic Asylum at Agra. Captain R. E. Lloyd, professor of biology at the Medical College, Calcutta, has been granted furlough out of India for two years. Captain R. B. S. Sewell, surgeon naturalist to the Marine Survey, has been appointed to officiate during Captain Lloyd's absence. Captain A. G. McKendrick has been placed on special duty under the Acting Sanitary Commissioner with the Government of India. Captain W. C. Long has been granted combined leave and furlough on medical certificate for one year. Captain R. McCarrison has arrived home on leave of absence from India. Captain J. H. Burgess has been appointed Specialist in Advanced Operative Surgery to the Ninth (Secunderabad) Division of the Southern Army. Captain R. T. Wells has taken up duty as Superintendent of the Dera Ghazi Khan Jail. The services of Captain E. J. C. McDonald, plague medical officer at Gurgaon, have been placed at the disposal of the Government of India, Department of Education. Captain W. J. Powell, officiating superintendent of the Central Jail at Jubbulpore, has been appointed to officiate as Civil Surgeon of Jubbulpore during the absence on leave of Major P. F. Chapman. H.E. the Governor of Bombay in Council has been pleased to appoint Captain J. Smalley to act as Second-class Surgeon, Ahmednagar. Captain J. W. Barrett has returned to India on the expiration of his leave of absence. Captain H. Halliday has taken up duty at Lyallpur as Civil Surgeon. Captain P. S. Mills, whose services have been temporarily placed at the disposal of the Punjab Government, has been appointed Plague Medical Officer at Delhi, vice Captain H. C. Keates, transferred to civil employment.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd South Midland Mounted Brigade Field Ambulance, Royal Army Medical Corps:—The undermentioned officers to be Captains (dated Nov. 13th, 1911): Lieutenant Alfred W. Moore and Lieutenant Gurney W. Buxton.

Welsh Border Mounted Brigade Field Ambulance, Royal Army Medical Corps: Captain Alexander G. Hamilton to be Major (dated Jan. 6th, 1912). Captain James Herbert Dixon, from the list of officers of the Royal Army Medical Corps attached to Units other than Medical Units, to be Captain (dated Jan. 6th, 1912).

1st London (City of London) Field Ambulance, Royal Army Medical Corps: Arthur Donald Griffith to be Lieutenant (dated Nov. 22nd, 1911).

2nd North Midland Field Ambulance, Royal Army Medical Corps: Claude Marriott Cowper to be Lieutenant (dated Oct. 17th, 1911).

Attached to Units other than Medical Units.—The undermentioned officers to be Captains: Lieutenant Hugh Richardson (dated Jan. 1st, 1909), Lieutenant Percy Moxey (dated Oct. 1st, 1911), and Lieutenant Harry F. Wilkin (dated Nov. 19th, 1911). Captain Oliver Eaton resigns his commission (dated Jan. 6th, 1912).

For Attachment to Units other than Medical Units.—Devonshire Penrose Hawkes Gardiner, to be Lieutenant (dated Nov. 1st, 1911).

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

In the opening number of the new volume of this journal Lieutenant-Colonel Sir William B. Leishman continues his Critical Review of Kala-azar and Tropical Sore. A joint paper by Major T. W. Gibbard, Major L. W. Harrison, and Lieutenant A. S. Cane deals with Further Investigations on the Use of Salvarsan in Syphilis. Its authors have had

great success with the technique which they have adopted, but they add a note of warning that "the fact that there is nothing in the technique which is beyond the capacity of anyone with ordinary skill and intelligence does not make salvarsan a remedy which can be administered carelessly with impunity." Captain G. J. Keane has some Notes on the Treatment of Syphilis in Uganda, which will be read with interest. The author points out that the natives will be wiped out by syphilis unless energetic measures are taken to enforce more strongly the treatment of the disease. Major M. H. Babington's article on An Outbreak of Paratyphoid B. Fever in Malta is also worthy of attention. In a note which occupies only two pages Colonel R. H. Firth makes a suggestion which, though perhaps not absolutely novel, comes with striking force from a scientific journal. After referring to the work of Loeb on parthenogenesis and its extension by other investigators, Colonel Firth points out that Bataillon of Dijon has succeeded in mechanically fertilising the ripe eggs of the common frog with the ultimate production of tadpoles as a result. Thus the segmentation brought about by altered environment of the ova of invertebrate animals in which gamogenesis is normal, has been followed by the fertilisation of the ova of a vertebrate animal without the physical contact of the two sexes. This, Colonel Firth suggests with all reverence, may throw light on the story of the birth of Christ. The time was not so very long ago when the Church looked upon science as her enemy, but it is more and more being recognised that the Church and Science may be expounders of two aspects of one truth. "This generation," says the author, "may not live to see the removal of all the difficulties which stand in the way of a scientific explanation of many things which are still mysteries, yet, in the light of what little glimmer we possess, it is desirable that hasty criticism of unintelligible things should be avoided."

Correspondence.

"Audi alteram partem."

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—Sir Alfred Pearce Gould's judicious letter in your columns cannot fail to have a good effect upon our sadly distraught profession. The great need now is to search out our points of agreement and work steadily together for their achievement. No sense of false pride or petty ambition must stand in the way of making use of every individual or institution that may be useful in securing our common aim. In our search for points of agreement, points of disagreement, some old and well known, others new and forced to the front by powers outside ourselves, will certainly be conspicuous. These latter can only be met either by a loyal submission of the minority to the views of the majority or by considered compromise.

Sir Alfred Pearce Gould and I, I fear, will never agree as to the merits and demerits of "contract practice." I cannot bring myself to believe that my professional colleagues are so different from mankind in general that it is impossible to obtain from them the best work unless for each item of added service they receive additional remuneration. This principle of payment is absent from the remuneration given to the navy, the army, the church, to the majority of teachers, and even to Cabinet Ministers. Those who believe that this principle must be an essential feature in professional remuneration in order to secure efficient service, are in my opinion misreading human character as badly as are those who assert that surgeons who receive large fees for each service rendered are incapable of making their pecuniary interest subservient to their patient's welfare.

I believe that medical men when properly paid, by whatever system, will give the best service of which they are capable, even as I rejoice to believe the majority of medical men do now, however inadequate their pay may be. Despite our fundamental differences, I am sure that if it were necessary in the interests of the profession Sir Alfred Pearce Gould or I, finding himself in the minority on this question, would loyally support the wishes of the majority. Fortunately this is not necessary. As Sir Alfred Pearce Gould points out in his letter, "the Act is wide and vague." It will therefore be possible for us to compromise and to support the fourth cardinal point as follows: "*The method of remuneration of medical practitioners adopted by each Local Health Committee to be according to the preference of the majority of the profession of the district of that committee.*" In some districts we may have a "capitation grant," in others a "fee for attendance," and in yet others, perhaps, we may have a combination of these two methods—a smaller capitation retaining fee combined with a fee for each attendance. It even seems possible that in some districts the medical benefit for all insured persons may take the form of a direct contribution to the cost of medical attendance.

To secure that these diverse systems shall be set up on a proper basis so as to provide adequate remuneration and other conditions of service satisfactory to the profession, medical men must present a united front. As Sir Alfred Pearce Gould says, the profession must look to the British Medical Association to take the chief part in this work. Valuable help may be given by the Royal Colleges and other institutions. The profession must, however, never forget that the only body in the deliberations of which representatives of every class of practitioner, medical officers of the Royal Household and of Poor-law unions, censors of the Royal College of Physicians and colliery doctors, surgeons who earn 100 guineas in an hour and others who earn scarcely so much in a year, can meet on equal terms and support such of their special privileges and interests as do not clash with the common good, is the British Medical Association.

I am, Sir, yours faithfully.

Harley-street, W., Jan. 8th, 1912. LAURISTON E. SHAW.

To the Editor of THE LANCET.

SIR,—We must all be grateful to you for your endeavours to unite the profession, and as one who feels keenly the need of some strong lead in the direction of practical unity, I venture to ask you to permit me to offer a few suggestions.

It seems to me that the profession is absolutely united in its desires, but hopelessly disunited as to the means by which these should be attained. I take it that we all feel on the one hand that an income-limit of not more than £2 a week is the irreducible minimum under which the profession could work the Act, and that the financial estimates under which the Act has been prepared are quite inadequate to meet the needs of the case, and we are determined that unless these difficulties can be got over no one should undertake to give medical treatment under the Act.

When, however, we come to consider how these difficulties may be met there seem to be three policies advocated by different sections of the profession: (*a*) One section appear to be of opinion that it is impossible under the Act to get these demands adequately conceded, and therefore that the only thing to be done is to refuse to have anything to do with the Act, whether in the way of forming Medical Committees or accepting posts on Insurance Committees, and of course of forming a panel. (*b*) Another section believe that it might be possible to obtain the concessions desired from the Insurance Commissioners, and consider that unless the Insurance Commissioners will agree upon conditions applicable to the whole Kingdom, which would therefore all be on the same scale, no one should undertake to give medical treatment under the Act. (*c*) The third section appear to think that it may be necessary to have somewhat modified regulations for different districts, and that it might even be better that these should be arranged locally, provided that these arrangements come under the irreducible minimum already referred to, but that no one should agree to give medical treatment under the Act unless these arrangements were satisfactorily conceded in every part of the country. I suppose that the third alternative would be regarded as practically the policy of the existing Council of the British Medical Association.

The first alternative appears to be the policy of the *Practitioner* and apparently of the new Manchester association. Dr. F. J. Smith's committee do not seem to have committed themselves to any definite policy, and they probably consist mainly of supporters of (*a*) and (*b*), with a small section of supporters of (*c*). The object of the supporters of (*a*) appears to be to endeavour to wreck the

Act, but it is a difficult and perhaps a dangerous thing to run counter to an Act of Parliament, and to endeavour to do so usually brings loss and discredit upon those who make the attempt. Between (*b*) and (*c*) it would seem to me to be difficult to make a decision apart from the best expert advice, and it appears to be between these two policies that the British Medical Association will have to decide, and if a wise decision is to be made it will, in my opinion, depend not upon clamorous meetings or violent newspaper letters, but upon the clear hard thinking of the men of business in our profession. Unfortunately the use of the terms such as "The Great Betrayal" or the accusations of political motives which have been freely bandied about have done much to render such careful thinking difficult, if not impossible.

My suggestion certainly would be that the matter should be now left to be decided by the different divisions of the British Medical Association and by its Representative Meeting. It is said that the newly formed bodies are intended to support the British Medical Association, but divided counsels are always dangerous, and I hope that we shall all agree to adopt the only constitutional action, at least to those of us who are members, of working through the existing constitution of the British Medical Association, and that whatever is decided by the majority after careful consideration may be supported loyally by us all.

I have ventured in a letter to the *Times* of Dec. 26th to recommend that three of the leaders of the profession—the President of the General Medical Council, the President of the Royal College of Physicians, and the President of the Royal College of Surgeons—should be asked to arbitrate between the conflicting sections of the profession. My meaning was not that they should attempt to settle for us what policy we should adopt, but what method we should adopt for arriving at our policy. I believe that if the different organisations concerned would be willing to be guided by some such impartial authority a great step towards peace and unity would be accomplished.

Apologising for trespassing at so great length upon your space, I am, Sir, yours faithfully,

CHARLES F. HARFORD.

Livingstone College, Leyton, E., Jan. 8th, 1912.

To the Editor of THE LANCET.

SIR,—The exhaustive article in your issue of to-day, together with the instructive letter of Sir Alfred Pearce Gould, should be of the greatest value to the profession, and the question that he has put at the end of his letter—namely, "Shall the scheme of 'medical benefit' be formulated by the Insurance Commissioners or Local Health Committees, or shall it be formulated by the profession and pressed upon these bodies?" can only be answered in one way, that is, as he urges—by the profession.

The profession, however, has not before it, either in the Act or from any official or other source, any intimation as to the services which will be required from medical men accepting service under the Act, and until their duties and responsibilities are distinctly stated I would urge that the amount or kind of remuneration cannot with any advantage be even considered. I feel sure that the profession would be glad to assist in making the Act a success, but it must be assured that the interests of the nation will be protected, and that the medical service shall be far above any hostile criticism.

It must be remembered that for the first time in the United Kingdom the State has now accepted the responsibility of giving "medical benefit"—not to paupers, but to a mass of people who will have compulsorily to pay for its medical service, and who will naturally insist on having the best. I feel quite sure that the profession will wish to supply an up-to-date and splendid medical service to the people under the ægis of the State—a service which must advance with the times and be always efficient on the most scientific lines, but modern medicine and surgery in their higher forms require heavy expenditure in the necessary appointments of a well-ordered clinic. With my intimate knowledge of every class of practice I am obliged to point out that there are many surgeries in crowded neighbourhoods where cheap or club practice is carried on which are not adequately fitted for the realisation of the above ideal. This statement may be unpalatable, but the present condition of things must be faced. I feel very strongly that with "free choice of a doctor," although the assured may exercise the "free choice," the State will still be responsible and will have to see that the surgeries have every possible convenience and appliance for the proper and efficient practice of modern medicine and surgery.

Who is to pay for these properly fitted surgeries, with instruments, sterilising baths, electrical appliances, hot and cold water, and antiseptic dressings of all kinds? Will the Insurance Commissioners make grants to doctors on the panel, or will the doctors who accept service be required to go to large expenditure in providing for the requirements of the service? It must be perfectly understood by the profession that over 15,000,000 people will have to be catered for, that there will be no out-patient departments of hospitals giving free medical attendance, and with the "free choice of a doctor" the popular man for the time being will be overworked, and after having provided proper accommodation for a large number of patients may the next year, the popular favour having gone to others, find himself involved in heavy loss; also every medical man on the panel will have no security of tenure, but will hold his office at the will of an Insurance Commission, not an unbiased, independent body, but a board composed of Friendly Society officials, with but one medical man on it, who could not possibly have sufficient weight to influence the other members, however well-disposed to the profession he might be.

The surgeries must be fitted for the proper treatment of casualties and urgent cases, but under the Act medicines are to be provided by pharmaceutical chemists. Are they to provide waiting-rooms? Are their shops to be near the surgeries? Will they provide expensive medicines on the unfettered prescriptions of medical men on any capitation system? If not, are medical men on the panel to provide medicines on terms which others have refused?

Are the medical men accepting service to undertake the treatment of fractures and perform all operations that may be necessary, or are they only to treat ordinary cases, sending serious or special cases to the nearest hospital? If the latter, what arrangements are to be made with the hospitals? The out-patient departments can be turned into clinics for the treatment of special cases and the beds can be used for insured persons; but insured persons who have paid the State for "medical benefit" will not be satisfied with the hospital conditions now provided for persons seeking gratuitous aid at the expense of the benevolent. They will demand, and rightly demand, the attention due to those who compulsorily, and in many cases against their will, have been obliged to pay for "medical" benefit to be provided by the State.

A question therefore arises, Will the voluntary hospitals be taken over by the State and the staff adequately paid, or if not are medical men on the panel to attend serious cases in the homes of the insured, homes in some cases of the most dirty and squalid description? When all these questions have been considered and decided, then, and not until then, the profession will be able to formulate a scheme of remuneration through a central body having the confidence of all its members. I trust that no attempt will be made to enter upon local bargaining with Insurance Committees or Commissioners dominated entirely by Friendly Societies.

I venture, in supporting Sir Alfred Pearce Gould's opinion, to ask him to gather together a strong committee, with a view to the drawing up of a statement showing the minimum that the State could possibly offer as "medical benefit" to self-respecting people, many of them able and willing to pay for medical treatment, but who will have compulsorily in the future to pay the State for medical service. With such a statement before them showing the duties, responsibilities, and requirements of the service, the question of remuneration would be easy of adjustment, equitably and to the advantage of both the State and the profession.

I am, Sir, yours faithfully,

Hampstead, N.W., Jan. 6th, 1912. ALBERT BENTHALL.

To the Editor of THE LANCET.

SIR,—The recent correspondence in your contemporary the *Times* by Mr. Boyton, Mr. Smith Whitaker, Sir Henry Craik, and Sir Philip Magnus has left an uneasy impression on my mind that Mr. Smith Whitaker is not receiving fair treatment. He was the paid servant of the British Medical Association, and as such conducted a missionary tour to its divisions before the introduction of the Bill, and also acted as a negotiator during its passage through the Houses of Parliament. He subsequently received a substantial recognition of his services from the Government. Under these circumstances appearances favour on the one hand the supposition that in view

of the fact that there were numerous official and unofficial interviews taking place between him and the Chancellor extending over the periods both before and after the introduction of the Bill, he was the tool of the Chancellor and his political supporters, and on the other hand, the supposition that Government supporters belonging to the Association were instructing him as to his course of procedure.

It is incredible to me that the governing authority of the Association did not give him written instructions as to the course which he was to pursue, both during his missionary tour and during the negotiations which he conducted with the Chancellor. It, therefore, appears to me highly desirable, in justice to Mr. Smith Whitaker, that such instructions should be published, and it is also desirable that the country should know how far the Government has conducted the negotiations with the British Medical Association with clean hands.

I am, Sir, yours faithfully,

Hatfield, Jan. 4th, 1912. LOVELL DRAGE.

To the Editor of THE LANCET.

SIR,—Much as we dislike it, the National Insurance Act has come to stay, and we must make the best of it. Apart from the medical benefits it has many commendable points which in time will be appreciated by the public. On the other hand, the clauses relating to medical benefits are most unsatisfactory, but they appear to be elastic.

The "six cardinal points" of the British Medical Association have not been accepted by Parliament, and I feel sure that it would now be a waste of time and energy to agitate for their incorporation in the Act. It may be that it is well for the profession and the public that the "six cardinal points" or the most essential of them were rejected, as their adoption would undoubtedly have perpetuated the objectionable *per capita* system of payment.

We are now free to demand our own terms, and I sincerely hope that we shall be unanimous in demanding payment for actual services rendered. I can see nothing in the Act to prevent the Insurance Commissioners from giving this method a trial, and if we give them plainly to understand that we are determined not to work under the Act unless we are paid according to an agreed minimum scale for actual work done, it is possible that this essential will be conceded.

In July last the Imperial Medical Reform Union sent out 20,000 referendum forms to practitioners in England and Wales inviting them to state whether in favour of capitation payment or for services rendered, and of the replies received more than 95 per cent. were in favour of the latter method of remuneration. The adoption of this method is, in the opinion of the Council of the Union, the only way to preserve the independence of the profession.—I am, Sir, yours faithfully,

GEORGE BROWN,
General Secretary of the Imperial Medical Reform Union.
Basinghall-street, E.C., Jan. 9th, 1912.

To the Editor of THE LANCET.

SIR,—May I ask space in your valuable paper to call the attention of my fellow medical practitioners to the extreme danger to themselves and to the profession at large in rashly signing any pledge or undertaking not to work under the National Insurance Act. It is quite patent that a great deal of the materials published in the lay press is purely of a general political anti-governmental colour, aimed at increasing subscribers to certain papers, and serving up pabulum for lay readers at the expense of the medical profession, whose real interests are sacrificed and the profession put out of court and rendered powerless by their present attitude of "*ruat cælum*." I do not feel myself at liberty to say more, and remain,

Yours faithfully,

F. W. FORBES-ROSS, M.D. Edin., F.R.C.S. Eng.
Harley-street, W., Jan. 6th, 1912.

To the Editor of THE LANCET.

SIR,—What is the use of all this outcry against Mr. Lloyd George's offer to buy our services for his big national club at the rate of 4*s.* 6*d.* a head? How can we reasonably refuse to serve under his scheme when hundreds, perhaps thousands, of us are now working for clubs at that rate and less, and hundreds more are hungering for the jobs? How can we blame the Chancellor for taking us at our own valuation and offering to buy us at market price, the price fixed by our own competitive folly in the open, unorganised, medical labour market? No one will believe our demands to be just as earnest while our acts thus belie our words. To regularise our position every club should be notified that on and after July 1st our charge per member would be 8*s.* 6*d.* (or thereabout), otherwise all contracts to cease.

I am, Sir, yours faithfully,

City-road, E.C., Jan. 8th, 1912. H. G. DIXON.

To the Editor of THE LANCET.

SIR,—In connexion with recent correspondence in your columns, my attention has been called to By-law 39, Sect. 4, of the British Medical Association regulations, which enacts as follows: "In voting upon any matter upon which a constituency has passed a resolution within the three months immediately preceding such meeting the Representative or Representatives of that constituency shall be under obligation to vote in accordance with such resolution." It is obviously important that in future the representatives have a clear understanding as to their duties in the matter of voting.

I am, Sir, yours faithfully,

London, S.W., Jan. 8th, 1912. EDWIN SMITH.

To the Editor of THE LANCET.

SIR,—Will you allow me space in your valuable journal for a brief reference to Dr. Edwin Smith's letter in your issue of Dec. 30th. I was present as an onlooker at the Representative Meeting to which he refers (Nov. 23rd), and myself heard Dr. Maclean instruct the delegates that in their voting "they were to vote in accordance with their conscientious opinion on the subjects that arose for consideration." I was amazed when I heard him say this, for obviously the delegates were there as representatives of the divisions only to the extent of expressing the views of the divisions, which had been considered at the meetings held previously throughout the country, certain definite points to vote on, for or against, having been submitted to them previously for their consideration. If, then, the chairman (Dr. Maclean) instructed the delegates to vote in the manner referred to, and assuming they did so, the meeting, I submit, ceased to be representative of the views of the profession. We owe Dr. Smith a debt of gratitude for his efforts to ventilate the matter. Again, as an onlooker, I could not help feeling that an attempt was being made, as Dr. Smith says, to fritter away the time of the meeting in futile discussions. I entirely agree with him that the consideration of the *number* of medical men (i.e., 3, 5, or 8 against 80) on the committees is not worth a thought, as in either case they would be powerless.

Dr. Maclean, according to his own statement, had received the offer of Mr. Lloyd George of the post of Commissioner for the secretary of the Association, and in my opinion there would have been no breach of confidence if he had openly explained this to the Representatives instead of talking of "smoke-room rumours," &c. Had he done this it is certain the Representatives would have voted very differently from the manner in which they did.

I was present at the Battersea town-hall when Dr. Lauriston Shaw addressed the Wandsworth division, and was astonished to hear him say that the doctors could have "8*s.* 6*d.* or 10*s.* per annum or 2*s.* 6*d.* per visit if they preferred it." There may be no legal barrier to this, but there is every other conceivable barrier, and when he made this statement he should have known this well. It looks as though this statement was made only to prevent those present from supporting the resolution which Dr. Edwin Smith had moved calling on the Council to resign, and I at any rate trust that no steps will be left untaken that will lead to the compulsory resignation of the Council.

I am, Sir, yours faithfully,

REGINALD THORPE, M.R.C.S. Eng., L.R.C.P. Lond.
Elmbourne-road, Tooting Bec Common, S.W., Jan. 6th, 1912.

*** We hope to publish later some of the many letters on this subject still in our hands.—ED. L.

THE MORBID DIATHESES.

To the Editor of THE LANCET.

SIR,—I am glad to find my old teacher Sir Dyce Duckworth raising a mild protest in THE LANCET of Jan. 6th (p. 54) against the too exclusive attention bestowed in the Bradshaw lecture[1] upon the parasite as against the host, or in his words, upon the seed as against the soil.

In my time, even long after "those dark days" of Mr.

[1] THE LANCET, Dec. 23rd, 1911, p. 1756.

Clement Lucas, Sir Dyce Duckworth—possibly more than any other teacher at St. Bartholomew's—urged that successful medical practice consisted in "treating the patient rather than the disease," a dogmatic maxim of profound truth which not only encouraged his students to study their "cases," but which also enables those who practise especially in the department of mental medicine to treat successfully, and happily in many instances to ward off, the most disabling scourge which can afflict the human race.

In his "thundered out" destructive criticism of diathesis, the Bradshaw lecturer has been carried by the interest of his subject further than he possibly intended, for—and this is why I write—as the orator of the Royal College of Surgeons he lends the influence of his powerful authority and position (to quote his words) "to destroy the reproductive function of the generative organs without ..... the knowledge of the individual" in cases of lunacy! He varies his theme "on some points in heredity" by an excursion into eugenics, and points out that the present moment would seem to be a favourable time for medical men to press upon the Government for some drastic measure for the protection of the State against the gradual increase of lunacy. Apart from the intrusion of medical men into politics—and not with the most happy experience if recent events are to yield a precedent—it may be well to note here that an inquiry made by a medical officer (Dr. G. Clarke) in one of the London asylums elicited the information that if the parents of those who were admitted insane had themselves been treated in the manner recommended by Mr. Lucas only about 1 per cent. of the offspring referred to would have been saved the scourge of insanity—i.e., insanity had occurred in the parents in nearly 99 per cent. after the birth of the certified patients. If every defective were deprived of those organs which are stated to belong to the next generation, then on the morrow there would be defectives again. Degeneration and defect are not the consequence of defective seed alone. By common consent they are equally the product of the environment or soil, and they are attendant upon evolution towards the perfect. In this progress towards perfection defectives will never be wanting. Defectives came not originally from other defectives, but from normal types. It is by no means certain that the offspring of two defectives even will be defective. The following letter from an old patient illustrates my point, although by itself I acknowledge that it carries no great weight:—"You will remember some years ago my giving birth to a child at the asylum. ..... I am pleased to tell you he is (up to the present) a very good boy. He has been awarded four medals and several prizes and is in the highest standard in the school."

Hitherto no pathogenic organism has been connected with insanity, and it may be stated to possess no more clearly defined pathology than in "those dark days" when insanity was recognised to have a definite "diathesis," and which, in the opinion of many, is still to-day a real condition—i.e., if such may be interpreted to imply a *tendency*, under certain conditions, for the tissues inherited from the parents to develop disease on certain definite lines; in other words, a defective constitution (soil) which is inherited and which is so constructed as to permit of readily disordered metabolism under the influence of some specific or non-specific organism (seed).

The views of a great surgeon upon biological problems cannot fail to be of interest to those who are attempting to unravel the facts of experience, even if these are only on the subjective side. Mr. Lucas supports his destructive criticism in regard to leprosy from Holy Writ and refers to the discovered "seed." May I also quote from Holy Writ and draw the attention of the lecturer to the parable of the sower which gives the vicissitudes of the seed resulting from environment? That which fell by the wayside served only as food for birds, that on stony places became scorched and sunburnt, and that which fell among degenerate thorns was choked out! None of the effects were in the least attributable to defective seed. It is essential for good development to have good surroundings, and good environment is as essential as good seed. It is clear, as Sir Dyce Duckworth has pointed out, that the individual organisation (soil), or in the case of lunacy the environment, has intimate proclivities which it is the fashion to-day to ignore.

I am, Sir, yours faithfully,

Claybury, Jan. 9th, 1912. ROBERT JONES, M.D. Lond.

MINERS' PHTHISIS IN THE TRANSVAAL.

To the Editor of THE LANCET.

SIR,—From recent cables in the Johannesburg newspapers it is gathered that in your issue either of Dec. 1st or 8th, 1911, appears a somewhat sensational letter from a medical practitioner in this city in respect to miners' phthisis in the Witwatersrand Mines. This letter has also since been published here, and, with your permission, it is desired to refer to its last paragraph. In this paragraph are quoted certain statements by a local engineer and tutor, who is known to feel aggrieved that no member of the Commission (before which, of course, he had every opportunity of adducing any evidence he desired) will discuss its statistical and other findings publicly with him, or descend to any exchange of personalities. While this policy will be adhered to it is thought right that the history of the Mining Regulations Commission should for general information be briefly set out; for, though well known in Johannesburg, it is naturally little known elsewhere.

This Commission was appointed by his Excellency Lord Selborne on May 11th, 1907, and consisted of five members (Messrs. Krause, M.L.A. (chairman), Nicholson, Porter, Price, and Heymann). Its immensely wide reference was to inquire into and report upon the following matters:—

1. The working of the Mines, Works, and Machinery Regulations, and to make recommendations for any amendments thereto necessary for the better protection of the health and safety of persons working in mines, with special reference to the following subjects: (*a*) prevention of accidents; (*b*) ventilation; (*c*) underground sanitation; (*d*) change-houses.
2. The present system of measuring up work underground, and to make recommendations as to the necessity or otherwise for legislation on this subject.
3. The question of extending the operations of the Mining Certificates Ordinance, No. 50 of 1903, to engine-drivers driving stationary and traction engines, not being man-hauling engines.

In order to clear the ground it was decided to deal first with the second and third of the terms of reference as being matters of limited scope compared with those comprised under Term 1.

On Sept. 21st, 1907, an interim report upon these subjects was presented, which report is printed as Appendix "B" to the Final Report. The Commission then proceeded to take evidence on the very wide ground covered by Reference No. 1 and virtually completed this work by June, 1908. About this time, however, commenced the curious sequence of misfortunes with which the *personnel* of the Commission was pursued. In April, 1908, Mr. Nicholson resigned through ill-health and died shortly afterwards. In June, 1908, Mr. Price resigned and left the Transvaal, and in November, 1908, Dr. Porter went on sick leave until May, 1909. In September, 1909, Mr. Heymann met with a serious motor accident, and in October, 1909, developed dangerous illness which confined him to bed for eight months. The progress of the report was, therefore, considerably delayed, and the great labour of its preparation fell eventually mainly on the shoulders of the two remaining Commissioners, whose time was, even in the ordinary way, sufficiently occupied by their professional and official duties. They were, therefore, unable to report till March, 1910.

It must not, however, be thought (as is tacitly implied in the letter under reference) that nothing was done between June, 1908, when the taking of evidence finished, and August, 1910, when the report was published. For in November, 1908 (*vide* p. 40 of Report), the Commission made the strongest official interim representation to the Honourable the Minister for Mines on certain matters, and notably on the outstanding importance, from the point of view of dealing with miners' phthisis, of preventing and allaying dust in mines. As the result of the Commission's recommendations in November, 1908, the following additions to the Mining Regulations were gazetted on Dec. 24th, 1908:—

5. Every place where development work is carried on and where the natural strata are not wet, and every dry and dusty stope shall be adequately supplied at all times with suitable clean water. Such supply shall be continuous, and shall be sufficient for effectively damping the broken ground and for allaying the dust caused by drilling operations.
6. Blasting shall be so arranged that men working in other places shall be exposed as little as practicable to dust and smoke.
7. All plant, material, and other things necessary to enable the above rules to be carried out shall be provided and maintained in working order.

146 (II.). The ganger or miner in charge of workmen shall be responsible that the following provisions be observed: (1) No person shall in the drilling of holes use any percussion machine-drill unless a

water-jet or spray or other means equally efficient is provided and used so as to prevent the escape into the air of dust caused by the drilling. (2) No person shall in any part of a mine remove any broken rock or ground if such rock or ground is in a dusty condition until it has been effectively damped so as to prevent the escape of dust into the air during removal. (3) No person shall, after firing has taken place, whether by electricity or in any other manner, enter the place in which such firing has occurred until the fumes caused by the explosion shall have been sufficiently dissipated, unless such person is wearing an effective respirator or other apparatus to prevent the inhaling of fumes or dust.

We note that the statistical conclusions of the Commission have been characterised in the letter under notice as entirely below the mark, and based on wholly insufficient data and inquiry.

Now, the figures from which these conclusions were drawn covered the triennium 1905–07, and were furnished by Dr. Louis G. Irvine and Dr. D. Macaulay, for whom they had been excerpted with great care by Mr. Dawson Squibb, of the Transvaal Government Health Department, from the returns of the Mines Department and of the registrars of deaths. In the opinion of the Commissioners these figures were at that time (1908) sufficiently recent, and it was not reasonably practicable, under the then existing circumstances, to obtain more reliable data. Then, in order to determine the true significance of these figures, which were somewhat difficult to deal with, and are discussed at pp. 33–37 of the report, the Commission secured the coöperation of Mr. G. D. Maynard, whose expert knowledge of modern statistical methods is well known. The broad conclusions arrived at were as follows:—

1. That amongst "white mining males of 20 and over" during the triennium 1905-06-07 "phthisis" (including miners' phthisis) accounted for 43·1 per cent. of all deaths, "other respiratory diseases" for a further 17·9 per cent., making a total of 61 per cent. from "all lung diseases," the comparative figures for "non-mining males" at the same age being 10·2, 15·8, and 26.

2. That the death-rate from "phthisis" (including miners' phthisis) at ages of 20 and over was more than six times greater amongst "white mining males" than amongst white "non-mining males."

3. That for the three years 1905–06–07 the death-rates from "phthisis" (including miners' phthisis) amongst "white mining males" at ages of 20 and over were respectively 6·0, 5·3, and 6·4 per 1000. Statistical theory shows that variations as great as these may be expected apart from any real change in the incidence of the disease. It is therefore impossible to state from the evidence before us that any alteration in the phthisis death-rate took place during the years in question.

4. That the death-rate from "other respiratory diseases" amongst "white mining males" at ages of 20 and over was 70 per cent. greater than that amongst similar white "non-mining males"—viz., 1·7 to 1.

5. That when "phthisis" and "other respiratory diseases" are excluded there appears to be an appreciably lower mortality from "all other diseases" amongst white "mining males of 20 and over" than amongst white "non-mining males of 20 and over"; this may in part be due to the fact that the white miners' high death-rate from respiratory diseases tends in a limited degree to decrease the numbers at risk to other complaints, and to the further fact that when a person with chronic respiratory disease succumbs to an acute intercurrent non-respiratory complaint—e.g., enteritis—the older standing respiratory disease will usually appear in statistical returns as the cause of death.

6. That the "death-rate from all diseases" amongst white "mining males of 20 and over" is greatly in excess of that amongst white "non-mining males of 20 and over" when the necessary correction for age-constitution of white "mining males" is made; this excess is about 60 per cent.

Now, while these conclusions were possibly within the mark—a restraint often lamentably lacking in irresponsible criticism—they are strictly those justified by the figures before the Commission. With regard to alleged insufficiency of inquiry, it should be remembered that the Commission with its immensely wide reference, had neither the *personnel* nor the legal power to undertake the careful individual physical examination of many hundreds of miners, which the seriousness of the conditions as revealed by the Commission's report has since brought about. But before this important clinical work could even be attempted, a special Act of the Union Parliament was necessary in order to compel miners to submit to such examination, and seven medical men have since been engaged several hours a day for many months in carrying it out. Their findings will, we understand, be available at an early date.

As regards the general results of the Mining Regulations Commission's work, it is particularly gratifying to us to be able to state that practically all of its recommendations, including those regarding dust-prevention, mine-ventilation and air-standards, scavenging, water-supply, native diet, housing, first-aid and ambulance, were promulgated almost *verbatim* as regulations with the force of law, in *The Union Gazette Extraordinary* of Nov. 21st, 1911; and if these regulations are enforced we believe that they will place the hygiene of mining in South Africa on a higher plane than that of any other mining community of which we are aware.

We append copy of some of the regulations in question, and have the honour to be, Sir,

Your obedient servants,

F. E. T. KRAUSE, LL.D.
CHARLES PORTER, M.D.,
Medical Officer of Health of Johannesburg.
A. HEYMANN, M.A.,
Consulting Analytical Chemist and Metallurgist.

Johannesburg, Dec. 18th, 1911.

SOUTH AFRICAN UNION GAZETTE EXTRAORDINARY,
21ST NOVEMBER, 1911.

Regulations made under Section Four of the Mines and Works Act, 1911 (Act No. 12 of 1911).

CHAPTER I.—*Definition "Ventilating District."*—Ventilating district shall mean such part of a mine as has an independent intake commencing from a main intake air-course and an independent return air-way terminating at a main and return air-course.

CHAPTER II. *No. 7 (b).—Surface Protection.*—Water containing poisonous or injurious matter in suspension or solution must be effectually fenced off to prevent inadvertent access to it, and notice boards shall be put up in suitable places to warn persons from making use of such water. 2. In no case may water containing any injurious matter in suspension or solution be permitted to escape without having been previously rendered innocuous.

CHAPTER III.—*Underground protection.*—12. Where a place contains, or is likely to contain, a dangerous accumulation of water or noxious gases, any working approaching that place shall have boreholes kept in advance, and such additional precautionary measures shall be taken as may be deemed necessary to obviate the danger of a sudden breaking through of such water or gases, and such working place must not exceed six feet in width. A certificated surveyor shall exercise supervision at every such working place and shall be responsible for the correct direction of such working, and for the breaking through of such water or gases without accident. In the case of a mine for which there is no certificated mine surveyor, the manager shall have all the powers and responsibilities and perform all the duties conferred or imposed on a certificated surveyor in this regulation.

CHAPTER VI.—*Ventilation.*—56. (1) The vicinity of the collars of downcast shafts shall be kept clear of cinder heaps, and so far as practicable, of smoke. (2) The ventilating current from the downcast shall be suitably split to provide sufficient air to all working places. (3) In all portions of a mine or workings where the natural ventilating current is insufficient, suitable mechanical appliances for ventilation shall be provided and operated.

CHAPTER IX.—*Duties of Gangers, Blasting, &c.*—101. (1) No person shall in the drilling of holes use or cause or permit to be used any percussion machine drill unless a water jet or spray or other means equally efficient is provided and used so as to prevent the escape into the air of dust caused by the drilling, and unless the floor and sides of the working face to a distance of at least ten feet from the face be kept sufficiently damp to prevent dust being raised by the escape of exhaust air from the rock-drill. (2) No person shall in any part of a mine remove any broken rock or ground or cause or allow the same to be removed if such rock or ground is in a dusty condition unless and until it has been effectively damped and is kept damp so as to prevent the escape of dust into the air during removal. (3) Any mine in which in the opinion of the Inspector of Mines the dust produced by drilling is not likely to cause miners' phthisis shall be exempted from the provisions of sub-sections (1) and (2) of this Regulation.

CHAPTER XIV.—*Responsibility in connexion with Mines and Works, &c.*—158. In addition to his other duties and responsibilities under these regulations the manager shall:—(1) Provide or cause to be provided on the surface, and in the case of a mine in the underground workings, sufficient and suitable sanitary conveniences in accordance with the following rules: (*a*) Where the number of persons employed does not exceed one hundred there shall be one sanitary convenience for every twenty-five persons or portion thereof; (*b*) where the number of persons so employed exceeds one hundred but does not exceed five hundred there shall be one additional sanitary convenience for every forty persons or portion thereof over the first one hundred; (*c*) where the number of persons so employed exceeds five hundred there shall be one additional sanitary convenience for every sixty persons or portion thereof over the first five hundred; (*d*) at each working level a well-ventilated, screened latrine with cement concrete floor, graded and drained to a sump, shall be provided for white and coloured persons separately, and shall be kept adequately supplied with sawdust, tallings, fine ash, or other suitable absorbent; (*e*) all pails or buckets used in connexion with underground sanitary conveniences shall have close-fitting lids which can be clamped on to prevent spillage during removal to surface. (*f*) All disused workings shall be barricaded off so as to prevent liability to fæcal pollution.

161. (1) If the manager or mine overseer is unable personally to carry out the duties prescribed for a shift boss in this regulation one or more competent white persons shall be appointed to act as a shift boss or bosses. (2) Each shift boss shall take charge during a shift of a section of the underground workings of the mine. (3) Each shift boss shall be responsible for the proper observance of the requirements of these regulations by the gangers or miners working under him, and shall as soon as practicable report to the manager or mine overseer any contraventions thereof; he shall further specially report whether water is being used in accordance with the requirements of these regulations for the allaying of dust and fumes. (4) The appointment of any shift boss or bosses shall not be taken to relieve the manager or mine overseer of any personal responsibility under these regulations. (5) Each shift boss shall at least once during his shift inspect every portion of the section of the mine assigned to him in which persons are working or through which they may have occasion to pass and shall ascertain the condition thereof as regards ventilation, sanitation, the presence of gases, and the state of the hanging wall, foot-wall, and sides, and generally so far as the safety and health of persons are concerned, and more particularly as regards the observance of the regulations for the prevention of dust.

162. In every fiery mine:—(1) (*a*) A station or stations shall be appointed at the entrance to the mine and to different parts of the mine as the case may require and a competent person or competent persons appointed by the owner, agent, or manager for the purpose, not

being a contractor or contractors for getting minerals in the mine, shall within two hours immediately before the commencement of each shift inspect every part of the mine situate beyond the station or each of the stations and in which workmen are to work or pass during the shift, and shall ascertain the condition thereof so far as the presence of gas, ventilation, roof and sides and general safety are concerned. (*b*) Such inspection shall be made with a locked safety lamp. (*c*) A report specifying where noxious or inflammable gas (if any) was found present and what defects (if any) in roof or sides, and what (if any) other source of danger were or was observed shall be recorded without delay in a report book to be kept in the engine-house or office at the mine for the purpose and accessible to the workmen. Such report shall be in the form approved by the Inspector of Mines and shall be signed by and so far as the same does not consist of printed matter shall be in the handwriting of the person who made the inspection. Such book shall not be moved from the engine-house or office on surface. (*d*) In the report book above referred to the manager shall clearly define the districts to be inspected by each person under this regulation and it shall be the duty of the manager to provide that the size of each district shall not be too large to permit of its thorough inspection and of the fencing off of any places which may be found dangerous within the time allowed. Should the inspector of mines consider any district too large he may by notice in writing to the manager require that it be reduced or divided for inspection purposes. (*e*) No workman shall enter, or be permitted to enter, the mine, or any part thereof, until such mine or such part has been so examined and reported upon as safe in such report book. (*f*) In collieries in which over 100 persons are employed an inspection required by Sub-sections (1) (*a*) to (*e*) of this regulation shall not be made by a ganger of that portion of the mine in which he is to work during the shift. (2) A similar inspection by the manager, or by a competent person other than a ganger appointed by the manager, and having at least three years' underground experience in mines of the class of the mine inspected, shall be made in the course of each shift of all parts of the mine in which workmen are to work or pass during that shift, but it shall not be necessary to record a report of the same in a book, provided that in the case of a mine worked continuously throughout the 24 hours by a succession of shifts the report of one of such inspections shall be recorded in the manner above required. (3) In no case shall a person be considered competent to make the foregoing inspections unless he has had at least three years' practical experience in coal mining in mines of the class to be examined. (4) The white miner or ganger in charge of a section or district shall make at least three inspections of each working face in his section or district whilst the workmen are at work.

CHAPTER XV.—*Miscellaneous.*—167 (1). Coloured labourers at the end of the shift shall, as soon as possible, be brought to the surface and shall not be kept waiting unnecessarily at the shift stations or elsewhere. (2) Time tickets of coloured labourers employed under ground shall either be marked underground or, where this is impracticable, in the shelter-room at the surface. (3) At every mine, except where exempted by the Government mining engineer, adequate provision shall be made elsewhere than in the living-rooms for drying wet clothing of coloured labourers coming off shift, and also for washing and disinfecting the clothing of such labourers.

168. One or more notices on which are legibly printed simple directions setting forth the approved procedure for the immediate treatment of cases of "gassing" shall be posted in a conspicuous place in every change-house, recreation room, and accident emergency station.

169. No person shall pollute the underground workings with fæces or urine, nor wantonly misuse or foul the latrines.

170. When tailings are used for filling worked-out ground the moisture contained in such tailings shall not have a higher potassium cyanide content than ·005 per cent.

CHAPTER XXIV.—*Ambulance, &c.*—227 (1). At every main travelling shaft, except where the mine hospital is close to such shaft, an accident emergency station shall be provided. This emergency station shall be equipped with the following: Two Royal Navy stretchers or stretchers of other pattern approved by the Government mining engineer. Two or more fitted first-aid boxes of a pattern approved by the Government mining engineer. A supply of dressings and splints. One portable oxygen inhalation apparatus. One air-mask with light hose hand-pump, or fitted with reducing valve to connect with compressed air or service pipe. Two portable electric lamps. In addition to the above there shall be kept at every coal mine: two oxygen breathing apparatus of the Shamrock or other type approved by the Government mining engineer. (2) At every level on which ordinary mining operations are being conducted there shall be kept: (*a*) a box containing emetic solution, sal volatile, three or more bandages, and a card upon which are printed simple directions for treatment of cases of gassing; (*b*) at least one plank stretcher of a pattern approved by the Government mining engineer. (3) On and after the first day of January, 1913, every mining official on any mine employing not less than 500 persons within six months after his appointment shall be required to be in possession of the certificate of an ambulance association recognised by the Minister testifying that the holder has attended a course of first aid and is qualified to render first aid to the injured, with special reference to mining accidents. For the purpose of this section mining officials shall not be taken to mean the classes of persons shown on the following list with any alterations of such list as the Government mining engineer may from time to time determine: Mine overseer, shift boss, chief surveyor, mechanical engineer, electrical engineer, foreman smith, foreman carpenter, foreman fitter, chief electrician, battery manager, cyanide manager, compound manager, hospital superintendent or orderly.

278 (1). At every mine or works where cyanide is used there shall be kept in a conspicuous and convenient place a sufficient supply of a satisfactory and efficient antidote for cyanide poisoning approved by the Government mining engineer. (2) Such antidote shall be kept in a box labelled "cyanide antidote" and explicit directions for the use of such antidote shall be affixed inside the lid of the box. (3) All vessels used for the treatment with acid of zinc slimes from the cyanide process shall be fitted with mechanical agitators and hoods or other appliances of such a nature that the fumes generated in such vessel shall be carried direct to the external air. (4) An adequate supply of wholesome drinking water shall be provided in each testing-room and assay office, and this supply shall be distinctly labelled "drinking water."

279. When any person employed in or about a mine or works receives injury by accident or otherwise the manager shall be responsible that the nearest qualified medical practitioner is sent for, unless the regular medical practitioner appointed to the mine or works resides within two miles of the scene of the accident. If the injured person is unable to proceed unaided to his abode or to a hospital the manager of the mine or works shall immediately have such person conveyed to his abode or to a hospital in the safest, best, and quickest way at the expense of the owner of the mine or works.

LEISHMANIA AND MOSQUITOES.

To the Editor of THE LANCET.

SIR,—Being, owing to stress of work, somewhat behind-hand in the reading of your journal, I have only just noticed the article by Professor G. Franchini on the development of "leishmania donovani in anopheles."[1]

Before attempting to fill up the "great lacuna still existing in our knowledge of the transmitting agents of Leishman's bodies," it is necessary to be acquainted with the literature on the subject. And it is evident that Professor Franchini has either never read the work which has been carried on in India or chooses to ignore it. As long ago as 1907, or rather before, Captain W. S. Patton, I.M.S., when experimenting with kala-azar and mosquitoes, found that both culex fatigans and anopheles stephensi in the endemic area are naturally infected with a species of herpetomonas (H. culicis Novy) indistinguishable from either leishmania donovani or leishmania infantum, and that the mosquitoes acquire the infection through the larval stage. Professor Franchini does not state whether his mosquitoes are naturally infected with a species of herpetomonas. Until this is known the experiments described by him are valueless. Since reading his article I myself have seen in Guindy, Madras, in culex fatigans flagellates which answer to the descriptions given by Professor Franchini, being, in fact, the flagellate and post-flagellate forms described by Patton in his account of the life-history of the flagellates seen by him in mosquitoes.[2]

Further, it is difficult to understand why Professor Franchini fed his mosquitoes on cultures in which the parasites would already be flagellates. In order to be quite sure the parasite will flagellate in the species of mosquito used he ought to have fed his mosquitoes on a case which contains the pre-flagellate forms in its peripheral blood. Concerning the transmission of kala-azar Captain Patton has infected bugs (cimex rotundatus) which show no natural flagellates by feeding them on heavily infected kala-azar patients (note, not on cultures), and in them has then shown the flagellate forms. The lacuna still to be filled up is the transmission back again to animals and so the production of kala-azar. And until this is done the complete etiology of kala-azar will still belong to the arcana of pathology. If Professor Franchini in his experiments used cultures of "leishmania infantum," as I presume he must have done, I fail to see how he can thereby claim that "the leishmania donovani can live and develop in the intestinal tract of the anopheles." I note that such is the heading of his article. Leishmania infantum and leishmania donovani are not synonymous terms.—I am, Sir, yours faithfully,

J. HAY BURGESS, M.D. Lond., M.R.C.P. Lond., F.R.C.S. Eng.,
Captain, Indian Medical Service.

St. Thomas Mount, Madras, Dec. 21st, 1911.

PS.—In support of my statements please see Scientific Memoirs, No. 27 and 31, of the Government of India by Captain Patton.

FUNGI FOUND IN TROPICAL BRONCHOMYCOSIS.

To the Editor of THE LANCET.

SIR,—In the interesting paper on bronchomycosis by Dr. A. Castellani in THE LANCET of Jan. 6th no fewer than 12 new species of endomyces are named. One of these is figured as it occurs in the sputum and in a maltose agar culture. There is nothing in the figures or in the text to suggest that the organisms are endomyces, but I shall assume that this has been proved elsewhere.

We are told that "in contrast to the usual endomyces albicans none of them liquefies gelatin." Now endomyces

[1] THE LANCET, Nov. 4th, 1911, p. 1268.
[2] Brit. Med. Jour., July 13th, 1907.

albicans (Vuillemin) is the latest name of our old friend the thrush fungus. In his original communication[1] Vuillemin only goes into botanical details, but Gedoelst,[2] who specially thanks Vuillemin in his preface for supplying information, distinctly states that this organism never liquefies gelatin. Further, it has been pointed out[3] that whereas oidium lactis liquefies acid saccharine gelatin (wort gelatin) the thrush fungus does not liquefy gelatin under any circumstances. As a matter of fact, it is rare to find any yeast or allied organism that can touch nutrient gelatin even in months. On the other hand, they generally do liquefy sugar gelatin in 3–4 weeks, and 30 days was the time indicated as a fair test at 20°–22° C. by Duclaux's work.[4] At present the statements of different authors in regard to the action of eumycetes on gelatin are often difficult to reconcile.

In the table of fermentation reactions there is an example of the rule that often holds good in these fungi—viz., an organism fermenting lactose also ferments saccharose, but not maltose. It is remarkable, however, that the organism E. pseudotropicalis ferments lactose well and only gives a trace of gas with galactose. The name E. guilliermondi naturally arrests the attention of anyone interested in saccharomycology. In any case the organism would do so as it ferments saccharose but not lævulose. To anyone accustomed to the vagaries and aliases of these organisms the table suggests that the number of species could be reduced, and the text raises a suspicion that Sac. krusei is E. pinoyi masquerading in conidial form as a yeast.

Dr. Castellani has done good service in directing attention to the pathogenic importance of a group of organisms hitherto regarded as unimportant in pathology.

I am, Sir, yours faithfully,

Acton, W., Jan. 8th, 1912. R. CRAIK, M.D. Glasg.

THOMAS *v.* BARKER.

To the Editor of THE LANCET.

SIR,—As you have revived, in a conspicuous paragraph in your last issue, the memory of the action brought against me last February, perhaps you will allow me to say a few words upon the subject? Has it ever occurred to you that it is just possible that I was blamed for the negligence of others? If you read all the evidence, can you unhesitatingly tell me that you have never more than half-suspected that I was made the object of a very great and very cruel injustice, which, had I been a younger and less successful man, might have brought about my financial and professional ruin?

Are you aware that the *sole* charge brought against me was that I had wrenched an indisputably tuberculous joint and that the only person in the room at the time of the alleged violence was a fully qualified medical man who swore that I used no force of any kind?

Do you know that one of our most eminent surgeons wrote the following words after hearing the trial from beginning to end: "I affirm that it was *impossible* for a man of Mr. Barker's education and experience to be guilty of such a blunder, ... and amongst the crowd of distinguished men and women who thronged the court anxious to bear testimony to his skill, I venture to assert there was not one who was not disgusted and indignant at the patent injustice of the verdict." It is useless for me to tell you now, as I told the court, that I was *absolutely innocent* of what was alleged against me, but I do confidently hope that before my work is finished, you, amongst other members of your profession, will understand that I was made to suffer for an offence I never committed, and that I have not entirely laboured in vain for the advancement of a neglected art which has done very much to relieve human suffering.

Faithfully yours,

Park-lane, W., Jan. 4th, 1912. H. A. BARKER.

*** We cannot admit without demur Mr. Barker's definite claim to a "professional" position. We do not know to what "education" the eminent surgeon refers as having been undergone by Mr. Barker. We publish this letter, but we would ask Mr. Barker to remember that in so doing we publish an indictment of a jury, who are entitled to be considered honest and capable.—ED. L.

[1] Comptes Rendus de la Société de Biologie, 1898.
[2] Les Champignons Parasites, 1902, p. 38.
[3] Lafar: Technical Mycology, vol. ii., pt. 1, p. 63.
[4] Microbiologie, tome iii., p. 175.

THE MEDICAL PROFESSION IN FRANCE AND THE ACCIDENT INSURANCE QUESTION.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Private Interests and Social Legislation.

IN France, as in England, the law establishes the liability of employers in the case of accidents to employees, and the former to protect themselves insure their workpeople. But for such insurance the employer would often be unable to meet his liabilities, and the injured workman would suffer in consequence. This, however, is no State insurance founded for the benefit of the community as a branch of social legislation. The insurance companies which undertake this work were brought into existence merely as speculations organised for the purpose of providing the highest possible dividends for their shareholders. As in England, in exchange for a fixed annual premium paid by the employers, they undertake to defray the employers' liabilities should an accident occur. This liability is established by the law of April, 1898, and amended by the laws of March 22nd, 1902, and March 31st, 1905. When an accident occurs the incapacity resulting entitles the victim to an allowance equal to half the wages such incapacity is likely to make him lose. If the victim dies his family is entitled to a small pension. Obviously it is in the interest of the insurance companies to meet these liabilities in the most parsimonious manner possible. There is here an acute conflict of interests which tends to defeat the object of the law. So much is this the case that the abolition of all such insurance companies is energetically demanded both by the organised working men and by the medical syndicates or unions.

In giving expression to the abuses and collecting evidence to prove that the complaints are fully justified none have been more active than Dr. Ch. Diverneresse. This evidence consists of testimony and documents, and some correspondence has been carefully photographed. Several of these photographs are now in my possession, and they clearly show the attitude and methods of certain insurance companies.

The Taxpayer Pays for the Insurance Companies.

Dr. Diverneresse explains the object of the insurance companies and then gives evidence to show to what a large extent this object is attained. The insurance companies seek to get medical men into their service on low terms. They offer a fee of 8 francs for every accident case visited, but nothing more. In these circumstances, the medical man has no motive to continue attending the patient and is glad to hand him over to the poor relief authorities who put him in the nearest municipal hospital where only 3 francs 50 centimes per day is charged for the patient. Thus, the insurance companies save their money at the expense of the taxpayer, who provides for the upkeep of the municipal hospitals. The next step is to bring to bear every kind of influence on the medical experts so that they may estimate the injury sustained at the lowest possible figure and thus reduce the amount of the damages that have to be paid. Thus the medical man employed by the insurance companies is often begged not to mention upon his certificate the fact that permanent injury is likely to result; for, unless this is done, the local tribunal cannot hold an inquiry into the circumstances of the accident. If there is no such inquiry there is no public discussion and the pension to be paid has to be settled personally with the victim. Instead of a public trial experts are appointed as arbiters, but every effort is taken by the companies to secure that these shall be favourably disposed towards the big employers and the insurance companies. Dr. Diverneresse has several letters showing that the companies actively interfere in these appointments. Here is the text of one of them:—

> I have the honour of informing you that according to the new stipulations of the law of the 31st March, 1905, the magistrate of the —— District *has on our demand appointed you to examine* M. B——, victim of a labour accident which took place on the 15th November, 1905.

The Partiality of Experts.

Many cases are published giving the effect of these manœuvres, and it must be admitted that they do not redound to medical credit on first reading. But we have enough difficulty in England with regard to workmen's

insurance to make us careful of being too suspicious. Genuine differences of opinion must often occur. In one such case an expert known to favour the insurance companies but appointed by the local magistrate estimated as the result of an accident that the victim's leg was shortened by about 5 millimetres, and concluded that his wage-earning capacity had been impaired to the extent of 5 per cent. The tribunal, acting accordingly, fixed the annual pension to be paid at 63 francs. But the victim appealed against this decision. Three other experts agreed that the shortening of the leg amounted to 25 millimetres, and thereupon the court raised the pension to 382 francs. So often are such differences of opinion worked in France against the workmen, according to Dr. Diverneresse, that he advises them strongly not to present themselves before an expert unless accompanied by a medical man to watch over their interests.

The insurance companies, if on good terms with the employer, have other methods of avoiding the fulfilment of their obligations. A case is related of a workman who was injured, and the tribunal estimated that his earning capabilities had been permanently reduced in the proportion of 12 per cent. The pension allowed was based on this estimate. Thereupon the company proposed to buy up his rights by paying a sum down. This sum, of course, should have been calculated on the basis of the 12 per cent. The employer, however, threatened to discharge the workman if he did not accept a sum calculated on the basis of 8 per cent. Rather than lose his situation the workman consented thus to lose a third of the compensation to which he was entitled, but so that the President of the tribunal should authorise this reduction it was necessary to produce a medical certificate testifying that now the workman in question was suffering from incapacity equal to only 8 per cent. Before me is the photograph of the letter written on the paper of the insurance company, whose full name and address are printed on the top. The name of the doctor to whom it is addressed heads the letter. This is a literal translation of the letter:—

> We are going to send you one of our pensioners, named V——, with whom we have to come to terms for the purchase of his pension. The initial reduction was 12 per cent.; the new reduction will be 8 per cent. which we ask you to inscribe on the certificate which you will be so good as to deliver so as to enable us to come to terms.

This letter is signed by the agent of the company. It is neither more nor less than an order to estimate the damage done at 8 instead of 12 per cent. without the slightest regard to the facts of the case. In another letter, of which I have also the photographed copy, the medical man is not called upon to alter an estimate of damage done, on which there might conceivably be some difference of opinion, but he is asked to state in his certificate that the patient was cured on the 24th of the month instead of the 31st. It is urged that medical certificates given under such circumstances to oblige insurance companies are not in keeping with either science or conscience, and I am glad to believe that they are not given as frequently as they are demanded.

Pressure to Prevent the Free Choice of Medical Attendant.

The law, however, insists that the victim shall have the free choice of a medical attendant. But the companies strive by every means to prevent workmen exercising their legal right. On one side they attack and intimidate the workmen and on the other side they use much the same means against the medical practitioners. If the latter are sufficiently independent different and insidious methods of persecution may be directed against them—at least Dr. Diverneresse states that this is the case. The fact that a practitioner acquires some popularity among the working classes and is often consulted by injured workmen will be considered as a suspicious circumstance. It will be whispered around that at heart he must be an anarchist, a dangerous person, and the more wealthy inhabitants in the neighbourhood will be advised to consult someone who enjoys a better reputation in the ranks of polite society. A good case of this sort is described as occurring to a practitioner who attended most of the workmen engaged at some large works in the department of the Ardennes. The manager openly declared that he had forbidden his workpeople to call in the services of the practitioner in question when an accident occurred "because he had not fulfilled expectations in supporting the interests of the works." The interests of the works were to be supported in one instance by declaring that a patient had been cured before a certain date when this was absolutely false. Then when the independent practitioner refused to comply the manager of the works insisted that the medical fees for which his firm was responsible should be reduced by 25 per cent. This meant the trouble of legal proceedings, but the doctor won his case. After that the workmen were not only forbidden to call in this practitioner when an accident occurred but also in cases of ordinary sickness. All this was absolutely illegal, but it was done all the same.

Suggested Remedies.

Such are a few of the cases selected out of a great number to show the demoralising influence exercised by speculative insurance companies. There are more than 300,000 labour accidents in France during the course of a year. At least a quarter of these accidents necessitate the obtaining of a certificate from an expert. It will be seen at once that on the result very large sums of money are involved. The interest of the nation is not specially bound up in economising the employers' capital. The object of legislation on the employers' liability for accidents is to diminish the frequency of such accidents, and when they occur to prevent the pauperisation of the injured and their families. The State is interested in seeing that the injured receive the full amount to which they are entitled. The interest of the medical profession is that medical men shall not be influenced in their judgment by pressure brought to bear upon them either by the injured on one side or by the employers and the insurance companies on the other side. The best guarantee against pressure from the latter source is the free choice by the patient of his medical attendant. But in some places the medical practitioner is liable to persecution if he responds to such a call, and the workman on his side runs the risk of being discharged if he does not call in the medical practitioner pressed upon him. Thus is the law defeated and the injured workman defrauded. The honour of the medical profession is involved in this scandal. Fortunately, there are medical unions to take up the matter, force the question forward, and insist on the impartial fulfilment of the law. To secure this the experts consulted must be beyond all suspicion; they should not have any connexion whatsoever with insurance companies or industrial enterprises, and they should be appointed beforehand and not chosen by local magistrates after an accident has occurred. Above all, any attempt at intimidation or unfair pressure should be severely dealt with.

THE MEETING OF THE CANADIAN PUBLIC HEALTH ASSOCIATION IN MONTREAL.

(FROM OUR SPECIAL CORRESPONDENT.)

Opening Ceremony.

THE newly-formed Canadian Public Health Association held its first annual meeting in Montreal on Dec. 13th, 14th, and 15th, 1911. The Governor-General of Canada, His Royal Highness the DUKE of CONNAUGHT, became a Patron, and, accompanied by the Duchess of Connaught and the Princess Patricia, performed the opening ceremony in the Convocation Hall of the Royal Victoria College.

The Hon. R. L BORDEN, Premier of Canada, a Vice-Patron of the association, and the Hon. MARTIN BURRELL, Minister of Agriculture and a Vice-President, took part in the proceedings.

The meeting was presided over by Dr. T. W. STARKEY, President of the association, professor of hygiene at McGill University, to whose zeal much of the success of the arrangements was due. After a brief address of welcome to Their Royal Highnesses and an expression of the gratitude of the association to Lord Strathcoma, Dr. Starkey read the postscript of a letter from the Canadian High Commissioner, enclosing a cheque for $2500 (£500) for the use of the association.

The DUKE of CONNAUGHT, in an excellent speech, emphasised the need for the general public to take an intelligent interest in preventive medicine. He said: "Our idea is that what was good enough for the past generation is not good enough for the present, and to improve conditions we must teach the growing generation."

Mr. BORDEN laid stress on the fact that in the past the matter of public health in Canada had not received all the consideration it should have received, but he intimated that in the future the Federal Government would pursue a different policy in this respect.

Mr. BURRELL, Minister of Agriculture, made the announcement of the evening, to the effect that a national department of health would be created. "Speaking quite unofficially," he said, "I would say I believe the time has come when, even if it does not demand a portfolio, it should at least have a full-fledged department in the Federal Government."

Sir LOMER GOUIN, Premier of the province of Quebec, who spoke in French, also announced that the Government of the province contemplated taking forward steps with regard to sanitary matters. He said that the Government of Quebec had decided to extend its hygienic work by dividing Quebec into ten sanitary districts, an expert reporting directly to the Government for each district.

Brief addresses were also given by Dr. GUERIN, Mayor of Montreal, and by Dr. MONTIZAMBERT, of Ottawa.

Dr. MONTIZAMBERT, as the oldest sanitarian in Canada (having been appointed to an official post by Sir John MacDonald in 1866), in moving a vote of thanks to the Governor-General for opening the meeting and to the Duchess of Connaught and Princess Patricia for being present, recounted the history of sanitation in Canada.

Before leaving Victoria College the Duke and Duchess, with other guests, partook of supper in the dining-hall. It may be said that the whole proceedings passed off without a hitch, a fact which reflects great credit upon all those responsible for the arrangements.

A meeting inaugurated in such auspicious circumstances had a high ideal to reach, and so far as the serious business of the meeting was concerned its members rose to the occasion. The attendance was good, about 130 members being present, while the papers contributed were numerous and generally of a high standard. If one desired to be censorious, perhaps the criticism might be made that there was somewhat of a plethora of papers, more than 50 being contributed. This, however, certainly speaks well for the energy of those interested in health matters in all parts of the Dominion.

Papers Read.

In the first general session Colonel G. CARLETON JONES, M.D., M.R.C.S., Director-General, Medical Services, Department of Militia and Defence, Ottawa, read a paper on the Military Aspects of Sanitation, in which he pointed out that although Canada was not generally regarded as a military nation, a form of conscription was really in force, and that therefore military sanitation was of more than academic interest.

Dr. J. D. PAGE, of Quebec, dealt with medical inspection and the care of immigrants on shipboard. He said that the examination of immigrants on shipboard was largely perfunctory, and consequently more or less useless to the Canadian medical inspectors of immigrants. He pointed out that the law directed that ships' surgeons should examine immigrants carefully, but said they did not live up to this obligation. He urged that no one had better opportunities for judging of the physical and mental fitness of an immigrant than the ship's surgeon. The chief reason for this slackness on the part of ship's surgeons, according to Dr. Page, was that these were usually young men who came for a change and a cheap sea trip, and had had no training whatever in regard to the work they were supposed to perform on board ship. Of course, the fault for this state of affairs really lay with the shipowners, who would not give sufficient remuneration to attract able medical men. Dr. Page thought that if an initial salary of $1000 (£200) a year were offered an efficient class of medical men might be secured for immigrant ships. The speaker had spoken to shipowners on the subject, who had replied that so long as they could procure more men by far than they required at the present beggarly rate of wages, they saw no cause to offer superior inducements. Thus there would seem to be little hope of bettering the situation in this quarter, and some other means must be resorted to to remedy existing conditions in this respect.

Dr. P. H. BRYCE read an exceedingly able paper on the Conservation of Food by Cold, a vital subject in these days on this side of the Atlantic.

One of the most interesting sections of the meeting was that of the social workers. This might be termed the ladies' meeting, as the convener was Dr. GRACE RITCHIE ENGLAND, and most of the papers read were contributed by women. It can be asserted with truth that from all points of view these papers compared favourably with those read in the other sections, and from a purely literary standpoint they were generally superior.

The first paper read in this section, however, was by a man. Dr. GEORGE ADAMI, professor of pathology, McGill University, treated of the value of exhibitions as agents in the public health campaign. He made out a very good case for such means of popularising public health movements, and incidentally said: "The daily press to a greater and greater extent is becoming one of the most effective agents in making known the defects in conditions relating to the public health." Miss ETHEL HURLBATT, principal of the Royal Victoria College, read a paper on Work for Women as Sanitary Inspectors. She said that Canada was beginning to realise that the health and well-being of the individual involved that of the community, and that the latter was coming to see its duty in enforcing proper precautions for the care of individual lives. Miss Hurlbatt advised the employment of women sanitary inspectors in factories where women worked, as well as in many homes.

Dr. A. D. BLACKADER, professor of pharmacology and therapeutics at McGill University, discussed the important causes of high infantile mortality in large cities, and the influence exerted by milk depôts.

(To be concluded.)

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The General Hospital.

AT a meeting of the board of management on Jan. 5th a letter was read from Professor Robert Saundby resigning his post as honorary physician to the hospital. It was unanimously resolved:—

That the board, having received with great regret the resignation of Dr. Saundby, senior honorary physician, desire to record their high appreciation of the very able manner in which he has discharged his duties as honorary physician for the past 27 years, of the skill and attention he has devoted to the patients under his care, and of the interest he has taken in the welfare of the institution; that his resignation be accepted with great regret, that the post be declared vacant, and that steps be taken to fill the vacancy on Friday, Jan. 25th.

It was further resolved:—

That it be recommended at the next meeting of the governors that, in consideration of the eminent services rendered by Dr. Robert Saundby to the hospital during the past 36 years, he be appointed honorary consulting physician to the hospital.

A committee was appointed to consider what steps should be taken to commemorate Professor Saundby's services. Professor Saundby, who is the President of the British Medical Association, came to Birmingham in April, 1876, when he was appointed resident registrar and pathologist to the General Hospital. In November, 1877, he was made assistant physician, and in January, 1885, was elected honorary physician. He has thus been connected with the hospital for 36 years, and for several years has been senior physician. He is also professor of medicine in the Birmingham University, consulting physician to the Eye Hospital, and the representative of the University on the General Medical Council.

New Year Honour.

The conferment of knighthood upon Professor Bertram C. A. Windle has caused much satisfaction to his numerous friends in Birmingham, where for many years he was professor of anatomy and Dean of the medical school. Like Professor Saundby, he came to Birmingham as pathologist to the General Hospital, a post which has been successively occupied by many distinguished medical men in Birmingham and elsewhere.

Anterior Poliomyelitis.

The medical officer of health, Dr. J. Robertson, has ascertained that during 1911 there were 150 to 200 cases of anterior poliomyelitis in the city with a few deaths. In several families more than one case occurred. In October last the health committee passed a resolution ordering that the Infectious Diseases Notification Act should apply within the city for a period of two years to this disease. The resolution was submitted to the Local Government Board for approval and came into operation on Jan. 1st.

Jan 9th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Queen Victoria's Jubilee Institute for Nurses.

THE report of the council of the Scottish branch of the Queen Victoria's Jubilee Institute for Nurses shows, as usual, an interesting record of growing work. The report refers especially to the loss sustained by the death of Dr. Joseph Bell, who had given valued services to the Scottish branch during the whole period of its existence. During the stage of initial organisation Dr. Bell had acted as vice-president of the provisional committee, and on the formation of an executive committee he was unanimously appointed chairman, the duties of which office he discharged with the utmost thoroughness until his last illness. In view of the increase in the work, the council has resolved to appoint a new committee to superintend the work done in the central training home, which included the nursing of the sick poor of Edinburgh. The office of honorary secretary of the Scottish branch has now been filled by the appointment of Lady Susan Gilmour. Thirty-six nurses have been trained in the central home during the year, while four have completed their training in Glasgow, two in Dundee, and two in Paisley. There are now 225 nursing associations affiliated to the Scottish branch of the institute, nine new branches having been affiliated during the year.

Legacy to Dundee Royal Infirmary.

At a meeting of the directors of the Dundee Royal Infirmary, held on Jan. 4th, it was intimated that the late Mrs. Euphemia Small or McGregor, widow, 3, Park-terrace, had by her settlement bequeathed the residue of her estate to the institution. It is expected that the infirmary will benefit to the extent of £900.

Montrose Asylum's New Charter.

A meeting of the Montrose Asylum board was held on Jan. 3rd, when the proposed new charter was again under discussion. At a previous meeting the asylum managers practically unanimously agreed that the appointment of auditor should be retained in the power of the board, but the representatives from Forfarshire and Kincardineshire parish councils and district lunacy boards, who initiated the scheme for representation, now informed the managers that if they insisted on a local instead of an official auditor being appointed the whole scheme might be wrecked. After considerable discussion it was resolved, by 12 votes to 5, that the auditor should be appointed by the board as heretofore, but that the appointment should be subject to the approval of the Secretary for Scotland.

Jan. 9th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Milk Commission.

THE *personnel* of the Vice-Regal Commission on Milk-supply has been changed by the resignation of Sir John Lentaigne, through stress of professional work, and the accession of Sir Stewart Woodhouse. The latter had a long experience as Local Government Board inspector, and subsequently as member of the General Prisons Board. It is unfortunate that the Commission does not include any medical officer of health experienced in the control of a milk-supply. Mr. T. W. Russell, M.P., Vice-President of the Department of Agriculture and Technical Instruction, gave important evidence a few days ago with regard both to the scarcity of milk in certain districts, and to the difficulty of preventing adulteration of milk and butter. As a remedy for the scarcity of milk he suggested that municipalities should purchase lands, to be run as dairy-farms, and so provide a public milk-supply. Some previous witnesses had suggested the use of goats' milk in districts where cows' milk could not be obtained. Mr. Russell pointed out that to provide sufficient milch goats they must be imported, and this could not be permitted because of the danger of introducing disease. He went on to give instances illustrating the difficulty of obtaining convictions and adequate penalties in the case of prosecution for adulteration or selling milk in an insanitary condition. In a recent case where it was proved that there was 25 per cent. of water in the butter a fine of 1*d.* was imposed! Fines of 10*s.* or £1 were frequently imposed by Dublin magistrates for adulteration of milk, but such penalties did no good. No punishment except imprisonment would cure this form of offence.

The Professorship of Surgery in the Royal College of Surgeons in Ireland.

Mr. William Stoker has, after many years' occupancy of the chair, resigned the professorship of surgery in the Royal College of Surgeons. Already there are several candidates in the field, including Mr. G. Jameson Johnston, surgeon to the Royal City of Dublin Hospital; Mr. William Taylor, surgeon to the Meath Hospital; and Mr. W. I. de C. Wheeler, surgeon to Mercer's Hospital.

The National University of Ireland.

Interesting changes have been made in the courses and regulations of the National University of Ireland for 1912–13. All information will be supplied from the University offices, 49, Merrion-square, Dublin (temporarily).

Vaccination Certificates.

A curious incident has occurred in the Celbridge union, where the Local Government Board has refused to sanction payment to a *locum tenens* on the ground that he does not possess a certificate in vaccination such as is prescribed by the Board. Up to a few years ago the Local Government Board recognised a certificate of instruction in vaccination given by any public vaccinator. A new rule was subsequently introduced stating that the Board would recognise only certificates granted by certain specified instructors, three or four in number. It appears that Mr. Knapp, the medical man affected in the Celbridge union, holds a certificate from a public vaccinator, but not from one recognised as giving certificates by the Local Government Board. The guardians apparently have no ground of complaint against Mr. Knapp, but they are in the difficulty that if they pay him they are liable to be surcharged. A newspaper report of the case added to the unpleasantness by referring to the lack of a "midwifery certificate" instead of a "vaccination certificate" as the cause of the trouble.

Medical Officership of the Pembroke Township.

Some controversy has arisen over the recent election of a superintendent medical officer of health of the Pembroke township. Contrary to the usual custom of public bodies in Ireland, voting was by ballot. An objection has been lodged with the Local Government Board on behalf of one of the defeated candidates. It is not yet known what action the Local Government Board will take.

Inspection of Belfast Workhouse.

Dr. E. C. Bigger and Mr. F. J. McCarthy, Local Government Board inspectors, have just reported on their inspection of the Belfast workhouse on Nov. 11th, 1911. They point out that the expenditure on out-door relief, which in 1905 was £620, has risen to £4,778 12*s.* for the year ending March 31st, 1911, and they urge the guardians to do everything in their power to keep their expenditure under this head within reasonable limits. If Whitechapel, with a large proportion of poor to the mass of the population, can reduce the numbers of those in receipt of out-door relief to 21, Belfast has no right to pay such a fabulous sum yearly. Every authority condemns this system which, in the opinion of the Royal Commission on the Poor-laws, merely "subsidises dirt, disease, and immorality." The guardians are also advised to introduce some labour test, which will ensure that able-bodied inmates—the "won't works" and the "workshys"—shall be compelled to do as much and as hard work as the ordinary unskilled labourer. The guardians are especially praised by the inspectors for their care of the consumptive poor. The White Abbey Sanatorium for Phthisis contains 265 beds, and is going to be enlarged by the erection of another pavilion, in order to carry out a much-needed improvement in classification at the Abbey Sanatorium.

Rathfriland Water-supply.

Rathfriland, one of the most important inland market towns of County Down, situated on a high hill, has decided to apply to the Local Government Board for sanction to a loan of £5000 for the formation of a water scheme from the Mourne mountains. Pure water is badly needed in the place, and the inhabitants are prepared to pay for it.

Jan. 9th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Limitation of Wine-shops in France.

"FOR many years hygienists on all hands have been deploring the increasing growth of alcoholism, an increase due largely to the ever-increasing number of wine-shops. The matter is complicated politically, because the wine merchants wield considerable political influence, and, moreover, their syndicate is very powerful. But in certain parts of France, in spite of and above every other consideration, the ravages of alcoholism being frightful, the necessary measures have at last been taken to limit the number of places for the sale of drink. In accordance with a legal enactment, the Mayor of Rouen, after deliberation with the Municipal Council, regulated by the following decree, dated March 7th, 1906, the opening of wine-shops in the city of Rouen: "The opening or establishment of a new wine-shop, or the reopening of an old one provisionally closed, within a radius of 150 metres as the crow flies from places of worship, cemeteries, hospitals, primary schools, colleges, and other establishments of public instruction is forbidden." A review of the effects of this ordinance during its five years of existence has just been made, with the following result: In 1904, 66 places were opened; in 1905, 80; in 1906 (the date at which this ordinance came into operation), 39; in 1907, 15; in 1908, 16; while in the last two years the opening of new places had fallen by 75 per cent. of the figure reached before the municipal by-law, which clearly establishes the efficacy of the step taken by the mayor. All mayors, if they are willing, can take similar measures, and these might effect a like drop in the sale of alcoholic liquors.

Milk Powder in Infant Feeding.

The feeding of infants has occupied during late years a considerable place in the attention of hygienists and physicians. More than ever breast-feeding has been insisted on and with some success. But, nevertheless, it often happens that for various reasons the mother is unable to suckle her child herself. Under these circumstances, different methods of artificial feeding have been studied very carefully. At the Pædiatric Society M. Aviragnet, M. Bloch, M. Michel, and M. Dobiencourt recently related their experience with another mode of alimentation—the use of dry milk or powdered milk. This dry milk can be obtained, either by desiccation of milk *in vacuo* at a moderate temperature (95° C.) or by rapid heating in the open air (120° to 140° C.). These observers have used this powder of milk in a certain number of normal nurslings as well as in other nursing children having various kinds of digestive troubles. The results have been generally remarkable, whether the powdered milk has been given to complete an insufficient breast supply or as an exclusive method of artificial feeding. In gastric dyspepsia the vomiting has usually ceased on the use of the powdered milk in very concentrated solution. In a great number of cases of the intestinal form of dyspepsia, often accompanied by wasting, the dry milk has been perfectly borne, frequently better than any other aliment. Sometimes this milk has seemed to be the only food that could be tolerated by the child. Finally, in certain acute cases of a febrile or algid toxi-infectious type and in a case of chronic urticaria, the milk powder has shown itself to be much the least toxic form of nourishment.

A Clinic for Criminal Insanity.

The Minister of the Interior has decided on the creation of a laboratory of criminal anthropology, such as has been frequently asked for by Parliament, which will constitute a true Clinic of Criminal Insanity. A Commission has just been organised, of which the dean of the Faculty of Medicine, Professor Landouzy, is one of the members, to settle on practical conditions under which this clinic can be established at the Ministry of Justice.

Responsibility for Accident to a Hospital Nurse.

The Tribunal of the Seine has recently given judgment in an interesting case. A nurse of the Hôpital St. Louis, who entered the radio-therapeutic department under Dr. Fleig on August 17th, 1906, sustained a fall, on account of which she claimed an annuity of 1400 francs (£56) by way of damages. She claimed that from the time of her entry on radio-therapeutic work her health had become damaged; that the influence of the electric rays had given rise to burns on her hands and to nervous troubles; and that on Dec. 17th, 1906, she became syncopal and fell on the heating apparatus, seriously burning her face. As a consequence of this accident, she said, and notwithstanding five years' treatment, she has remained disfigured, and her sight grows weaker from day to day, so that all work has now become impossible to her. But after the pleadings and the summing-up the President gave judgment to the effect that everything tended to show that the nurse fell, not in consequence of a simple syncope, but in an epileptic crisis, as was testified to by witnesses; that this condition could not be attributed entirely to the clinic in which she was employed, and that experts had decided that, at most, all that could be admitted was that a prolonged stay in a room in which practically constantly one or more unprotected Crookes tubes were in action had favoured neuropathic troubles in a person already predisposed to them. The court therefore declared the Administration of Public Assistance not responsible for the accident, and refused the damages claimed.

The Congress of French Alienists and Neurologists.

The Twenty-second Congress of Alienists and Neurologists of France and the French-speaking Countries will take place at Tunis this year, the week before Easter, from April 1st to 7th. The President of the Congress will be Dr. Mabille, of Rochelle; the vice-president, Dr. Arnaud; and the general secretary, Dr. Porot, of Tunis. The three questions on the orders of the day will be: Perverted Instincts, the Nervous and Mental Troubles of Paludism, and the Assistance of the Insane in the Colonies.

Jan. 9th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Etiology of Goitre.

TWO recent meetings of the Vienna Gesellschaft der Aerzte were taken up mostly by a discussion on the interesting problem of the etiology of thyroid enlargement. In this country there are several localities where this pathological condition is very frequent; as, for instance, in Tyrol, in the southern parts of the Alps, in Styria, in the Balkan provinces of Austria (Bosnia and Herzegovina), and also in the largest cities which derive their water from mountainous districts. The military authorities are much interested in the question, for the proportion of recruits rejected on account of goitre is now larger than it used to be. In certain districts there is hardly a young man without a more or less marked enlargement of the thyroid gland. Investigations by Professor Wagner von Tauregg on the correlation between idiocy, cretinism, myxœdema, and goitre have placed it beyond doubt that the latter condition is on the increase, that its effects are becoming more marked in the population, and that treatment by thyroid extract is useful only in selected cases. A paper by Staff-Surgeon Taussig was read before the above-mentioned society, in which he argued that goitre was infectious, that infection took place only after prolonged exposure to the hypothetical pathogenic agent, and that the intestinal canal was the way of entry of this agent. He also expressed the opinion that idiocy could be directly transmitted in a similar manner, and he drew attention to the investigations instituted by him in Bosnia amongst the Turkish part of the population, whose mode of living was very favourable to such transmission. Dr. von Kutschera, of the Austrian Public Health Service, also asserted that researches carried on by him in Tyrol proved the contagiousness of goitre and its allied conditions; he believed that the infection attached itself to the interiors of houses occupied by cretins and to the clothing and bedding.[1] The views expressed by these two speakers were strongly opposed by Dr. Wagner, Dr. Frankl-Hochwart, and other believers in the toxic theory, according to which the toxic or organic pathogenic agent was conveyed by water. Dr. Graf, who also took part in the discussion, said that in some places the recruits were in the habit of drinking the water from certain springs, with the result that after about four

See also THE LANCET, Nov. 11th, 1911, p. 1347.

weeks of this practice they showed a marked hypertrophy of the thyroid gland which caused their rejection by the recruiting authorities of the army. When this manœuvre was successful they drank the same water for a second period of four weeks, taking the precaution to boil it previously, and the goitre disappeared as readily as it came. Dr. Graf said that he was just now making observations with such "goitriferous" water, and he was inclined to believe that sterilisation of it by ultra-violet rays was sufficient to make it incapable of producing the effects in question. In Vienna there has been a marked increase in the prevalence of goitre since water derived from high mountain springs was brought into the city in 1870, and even since 1910 when new springs were added to the previous source of water-supply, more goitres seem to be observed. The preponderance of opinion in the discussion was to the effect that the hypothesis of organic water-borne infection was the most probable one, and that a thorough investigation of the problem was very necessary.

The Rettungsgesellschaft.

The Vienna Rettungsgesellschaft (First Aid Corps), which has served as a model for nearly all other institutions of this kind all over the continent, has celebrated the thirtieth anniversary of its creation. The increase of its importance may be judged by the following figures. It took 14 years before 50,000 casualties were recorded on its books, 100,000 were reached six years later, and in another eight years the number 200,000 was recorded. At present the well-known car and signal of the corps is a distinctive and respected feature of the street traffic of Vienna, and this private society is the recipient of generous gifts and bequests quite contrary to the usual custom in this country, where it is expected that all charitable institutes shall be provided for by the State. It is, therefore, very unfortunate that this corps is just now engaged in a conflict with the "Wirtschaftliche Organisation" (organisation for upholding the interests of the medical profession). This organisation tries to provide a uniformity of all contracts between medical men and public or private corporations on the basis that no medical man may be dismissed unless there are satisfactory reasons for it; that payment be made on a reasonable scale; that the medical men shall have as full rights and privileges as any other employee in any other undertaking; and that old-age pensions be granted to the medical staff on terms similar to those adopted in State employments. The Rettungsgesellschaft, however, had been sadly lacking on all such points, and the board of management refused to allow the "organisation" to interfere, whereupon the latter body thought fit to make the public acquainted with the divergence of opinions between the board and its medical staff. The celebration has therefore been somewhat marred by internal dissensions, and all true friends of both the Rettungsgesellschaft and the medical profession hope that an amicable arrangement will soon be arrived at.

Jan. 8th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Sydney Hospital Centenary.

THE foundation-stone of the original Sydney Hospital was laid on Oct. 30th, 1811, by Governor Macquarie. A box containing gold and silver coin and a medallion of George III. was placed under the stone, and this was removed when the old building was demolished and is now in the possession of the hospital. The original buildings were in three blocks. One remains as part of the present Parliament House, one exists in the Royal Mint, and the present hospital occupies the site of the third which was the central block. The centenary celebrations were held on Oct. 30th, 1911, in the quadrangle of the hospital, which was covered in and lit by electric light for the occasion. The President welcomed the Lieutenant-Governor, the State Premier, and other visitors, who briefly spoke congratulatory sentiments.

Charge against Medical Man.

The elderly medical man, Dr. S. Peacock, who was recently sentenced to death for the murder of a young woman, and in whose case some law points were reserved, has obtained leave to appeal to the High Court for the direction of a new trial. The arguments before the State Full Court lasted more than a week and were mainly directed to whether the Chief Justice had misdirected the jury.

Venereal Disease.

The Queensland Branch of the British Medical Association recently discussed the question of venereal prophylaxis. Dr. E. S. Jackson, the President, moved:—

That this meeting of the Queensland Branch of the British Medical Association views with regret the repeal of the provisions of the Contagious Diseases Act as regards Brisbane, believing that even if the Act had not been stringently enforced it was yet productive of much good.

In a lengthy speech Dr. Jackson upheld his view and said that though there was plenty of syphilis in Brisbane, a large majority of sufferers could trace their infection to other States. The motion was seconded by the Hon. W. H. Taylor, M.D., M.L.C., who had a long acquaintance with the history of the Brisbane Act. An amendment was moved by Dr. A. Jefferis Turner to the effect that:—

This branch recognises the urgent necessity for legislative and administrative action on modern lines for the prevention of the spread of venereal diseases, such action to apply to both sexes and as far as possible to the whole State.

This was seconded by Dr. J. S. C. Elkington, chief medical officer of health, who thought there was something possible between a Contagious Diseases Act and no attempt at all, and indicated a preference for notification and segregation. After discussion the amendment was lost and Dr. Jackson's motion, with some unimportant modification, carried with only two dissentients.

Chair of Anthropology.

Dr. J. W. Barrett has offered £500 to the council of the Melbourne University as a nucleus of a fund for the endowment of a chair of anthropology in the University. There does not seem any immediate prospect of the scheme being developed as the council has no means of carrying it forward, but local interest in the subject has grown of late years under the direction of Professor R. S. A. Berry.

Personal Items.

Dr. Henry C. Maudsley has returned to Melbourne and resumed work as lecturer in medicine to the University.—Dr. W. Chisholm has resigned his position as surgeon to the Sydney Hospital and has been appointed to the honorary consulting staff.

Dec. 8th, 1911.

Obituary.

JOHN FRANCIS SUTHERLAND, M.D., C.M. EDIN., F.R.S.E.,

SENIOR DEPUTY COMMISSIONER IN LUNACY FOR SCOTLAND.

Dr. J. F. Sutherland died at his residence in Tain on Dec. 30th, 1911, as we stated last week. He was a native of Caithness and was born at Lybster in 1854. He received his medical education at the Universities of Edinburgh, Glasgow, and Paris. At Edinburgh he took the M.B. and C.M. degrees in 1878 and two years later the M.D. degree, obtaining a gold medal for his thesis. At Glasgow University he was a pupil of Lord Lister, who spoke of him as "a very distinguished member of my class," and in after years wrote: "He has laboured assiduously at the subjects of hygiene and the welfare of the insane, and the services which he has rendered have been recognised both at home and abroad as of very high order." Subsequently Dr. Sutherland went to Paris, and after holding the position of resident physician at the Hertford British Hospital returned to England and was for some years engaged in general practice. He then entered the Civil Service, and was appointed medical officer to H.M. Prison, Glasgow, by Sir William Harcourt (then the Secretary for Scotland), which position he held from 1880 to 1885. In 1887 the Marquis of Lothian appointed him consulting medical officer to the General Prison, Barlinnie. During his tenure of office at the Glasgow Prison he devoted himself actively to the study of criminology and allied subjects, and much of the modern penal reform may be attributed to his foresight and advocacy.

In 1895, on the recommendation of Sir George O. Trevelyan, he was appointed a Deputy Commissioner in

Lunacy for Scotland, and this position he held at the time of his death. In the year previous to his appointment as Deputy Commissioner he acted as secretary and member of the Departmental Committee on Habitual Offenders, Inebriates, Vagrants, and Juvenile Delinquents. The Lord Provost, Sir James Bell, who received this committee in the Municipal Buildings of Glasgow, paid a tribute to the continuous efforts of Dr. Sutherland in putting forward the case for habitual offenders of all classes in such a way that the Government could treat the "crying evil of the day" as a disease.

Dr. Sutherland attained a European reputation by his contributions to the literature of hygiene, insanity, and inebriety, and he was connected with many learned societies. He was an honorary member of the Medico-Legal Society of New York and of the Psychological Society of Moscow, and Foreign Associate of the Psychological Society of Paris. He was a Fellow of the Royal Society of Edinburgh and of the Statistical Society. He was honorary secretary of the Twelfth International Medical Congress at Moscow, honorary President of the Medico-Legal Section of the Thirteenth International Medical Congress at Paris, and secretary of the Fourteenth International Congress at Madrid. His publications include "Hospitals, their History, Construction, and Hygiene," which formed the subject of his M.D. Thesis, and which won marked attention by its clear-sighted policy at a time when hospital administration left something to be desired. "The Insane in Private Dwellings" was another of his thoughtful contributions to an important subject, as was also "Recidivism: Habitual Criminality and Habitual Petty Delinquency; a Problem in Sociology, Psycho-pathology, and Criminology." This suggestive book we reviewed in our issue of Feb. 13th, 1909, p. 468. "The Treatment of Dipsomaniacs" was the title of another of his books, and his well-known "Ambulance Vade Mecum" has gone through 30 editions, another being now in the press. He was also the author of the article on Lunacy in the Encyclopædia Medica, and contributed many articles to English and foreign journals. In 1892 he read a paper before the British Association at Edinburgh on Crime from an Economical, Statistical, and Social Standpoint, and when the British Association met in Glasgow in 1901 he contributed to the Economic Section an elaborate paper with statistical tables on the growth and geographical distribution of lunacy in Scotland.

Dr. Sutherland was a man of keen observation and marked energy. In order to make himself thoroughly acquainted with the management, construction, and sanitation of prisons, asylums, and hospitals he visited the principal cities of Europe and America. In the social and corporate life of Glasgow Dr. Sutherland was actively interested, and he assisted in the formation of the Association for Improving the Social Condition of the People. He was a deacon in the Well Park Free Church and was vice-president of the West of Scotland Free Education League. On his appointment as Deputy Commissioner, and before leaving for Edinburgh, he was entertained by the citizens of Glasgow to a complimentary dinner, when the Lord Provost paid a high tribute to his qualities. His work as Deputy Commissioner in Lunacy necessitated his travelling into almost every part of Scotland, and loving as he did an open-air life he was able to indulge in his favourite recreations of shooting and fishing.

He leaves a widow and family, his son, Dr. Halliday G. Sutherland, being well known as an authority on tuberculosis.

SOPHIA JEX-BLAKE, M.D. BERNE, M.R.C.P. IREL.,

LATE PHYSICIAN, EDINBURGH HOSPITAL AND DISPENSARY FOR WOMEN AND CHILDREN, ETC.

WITH the death of Dr. Sophia Jex-Blake, which took place at her home, Windydene, Mark Cross, Sussex, on Jan. 7th, a prominent personage has disappeared from the ranks of the British medical profession.

Sophia Jex-Blake, daughter of Thomas Jex-Blake, Proctor of Doctors' Commons, was born at Brighton in January, 1840. Intending at first to devote herself to an educational career, she became in 1858 mathematical tutor at Queen's College, London, a post which she occupied until 1861. She then undertook a tour of investigation into conditions relating to the education of women in various countries, and after traversing the continent she proceeded to America to continue her investigations there. While in America she attended the first course of lectures delivered by Dr. Elizabeth Blackwell, the pioneer American woman physician, at the New York Infirmary and College for Women.[1] Resolving to devote herself to medicine, in 1866 she commenced medical studies at Boston. In 1868 she returned to England and in the following year applied for permission to matriculate in medicine at the University of London, only to learn that the charter of that University had been so framed as to exclude women from its medical curriculum. Nothing daunted she went to Edinburgh, where, after meeting with a rebuff, she finally succeeded, through associating herself with several other ladies pursuing the same end, in getting the University to adopt regulations permitting the education of women in medicine in classes apart from the male students. After six months' uninterrupted study, however, considerable hostility was encountered, and this developed into serious persecution at the hands of the male students on their applying for permission to study clinical medicine in the Edinburgh Royal Infirmary. This hostility continued with such increasing virulence that in 1871 a regulation was passed by the Surgeons' Hall of Edinburgh which rendered impossible the attendance of women on its courses, in spite of energetic public protests to the contrary, and the University Senatus declined to intervene on their behalf. It is true that in January, 1872, the University offered to grant certificates of proficiency to women, but these would not have been registrable diplomas under the Medical Act, and consequently were useless as an avenue to the practice of medicine. An action was then brought against the University Senatus to compel it to allow the women students to finish their education and to present themselves for examination for a degree in medicine, and judgment went in their favour. This decision, however, was reversed by a bare majority of the whole Court of Appeal, the ground being taken that the admission of women to the study of medicine was illegal *ab initio*. The labours and expense of Miss Jex-Blake and her friends were brought to nothing, and they were saddled with costs. As further struggle in Edinburgh seemed hopeless, Miss Jex-Blake came to London in 1874, and took a prominent part in founding the London School of Medicine for Women. This institution was opened in October of that year, the privilege of attendance at the Royal Free Hospital being associated with it, and here her studies were completed. But even so, the difficulty of graduation faced her, and she had to go abroad to Berne, in Switzerland, in 1877, to take her degree of M.D. But her valiant championship of the rights of women in medicine had in the meantime aroused great sympathy for her and her cause, with the result that a Parliamentary agitation had caused the passage in 1876 of an Act to enable British medical qualifying bodies to open their doors to women, and later in the year of her graduation at Berne she was enabled to take the opportunity afforded through the acceptance of the Act by the King and Queen's College of Physicians of Ireland to obtain a British diploma as Licentiate and Licentiate in Midwifery of the College. Thus, after upwards of ten years' struggle against perpetually recurring obstacles she finally found herself able to register as a medical practitioner. In 1878 she settled in practice in Edinburgh, the scene of her former conflicts, where she established a dispensary for women and children, which developed later (1885) into a cottage hospital, now the Edinburgh Hospital and Dispensary for Women and Children. In 1886 the Edinburgh School of Medicine for Women was established by her, and she became its dean and lecturer on midwifery. The school was finally recognised as qualifying for graduation by the University in 1894. Dr. Jex-Blake continued in practice in Edinburgh until 1899, when she retired to spend her closing years in her native county of Sussex.

Among her literary works may be named her graduation thesis on "Puerperal Fever," "The Care of Infants," which reached its second edition in 1903, and two books respectively on "American Schools and Colleges" (1867) and "Medical Women" (second edition in 1886). She contributed papers and articles on the Medical Education of Women (Transactions of the Social Science Congress, Norwich, 1873, and a report on the same subject to the Chicago Conference in 1893), Medical Women (*Nineteenth Century*, 1887), and Medical Women in Fiction (ibid., 1893).

[1] Dr. Elizabeth Blackwell died in May, 1911, and an account of her work is given in THE LANCET of June 11th, 1911, p. 1657.

A MEETING OF WEST LONDON MEDICAL MEN.

A MEETING of medical practitioners residing in the area covered by the Chelsea and Kensington divisions of the British Medical Association was held in the Hammersmith Town-hall on Tuesday afternoon, Jan. 9th. Dr. F. J. SMITH was in the chair, and there was a good attendance. The declared aim of the meeting was to inaugurate a local Reform Committee within the Chelsea and Kensington divisions, and thence to spread the movement throughout all the divisions of the British Medical Association.

The functions of the proposed Reform Committee were defined by the promoters of the meeting in the following terms:—

1.—The objects of the committee shall be to secure the promotion and the passage of an Act of Parliament amending the National Insurance Act, 1911, in such a manner as to safeguard the interests of the medical profession as laid down in the "Six Point Programme" of the British Medical Association, and to carry out such reforms in the organisation and officers of the Association as may be necessary to achieve this end.

2.—Membership of the committee shall be open to all such registered medical practitioners as are (1) members of the British Medical Association; (2) eligible for membership of the British Medical Association and have signified their intention in writing to become members of the British Medical Association.

3.—Every member of the committee shall pledge himself to decline to accept medical service under the National Insurance Act, 1911, until it is amended in the manner laid down in paragraph 1.

4.—The subscription to the committee shall be the sum of 5s. per annum; such subscription shall be paid at such time as application for membership is made and upon the first day of January in each year for so long as necessary.

The CHAIRMAN opened the proceedings with a temperate statement of the case for organised reform. He argued that if the future inevitable negotiations were left by the profession in the same hands as hitherto there was grave danger of a second failure, because the same motives would be at work. He disclaimed any hostility to the British Medical Association; their quarrel was with the Council, whose attitude towards the measure they disapproved of. Dr. Smith supported his case by references to past events and by quotations from documents issued by the leaders of the Association. He urged that every legitimate endeavour should be made to get rid of those members of the Council who approved of the Act, so that the Council might truly represent the wishes of the profession. He read a letter from Dr. Buttar, chairman of the Kensington division, to the effect that the proper way to secure reform was by calling special meetings of the various divisions. Dr. Smith claimed that, although that was the correct constitutional course, in the urgency of the situation it seemed necessary to undertake some preliminary work of the kind they had attempted. They were now in a stronger position for requisitioning divisional meetings.

After Mr. P. C. RAIMENT (honorary secretary of the meeting) had given reasons for not waiting to see whether the regulations to be drafted by the Commissioners were acceptable to the profession, Mr. M. TOWNSEND proposed the following resolution in an effective speech:—

That this meeting of medical practitioners in the Kensington and Chelsea divisions of the British Medical Association, being profoundly dissatisfied with the recent decision of the Council of the British Medical Association in regard to the position of the medical profession under the Act, cordially approves of the proposal to form a Reform Committee of the British Medical Association on the lines suggested, and pledges itself to use its best interests to further the movement among all the divisions of the Association.

This was seconded by Mr. W. S. LEE.

Dr. G. J. CRAWFORD THOMSON, while strongly opposing the Act, advised against the premature formation of a new organisation which might still further spread disunion in the profession. His words created a considerable impression, although there was some dissent from various parts of the audience.

Mr. D. A. O'SULLIVAN also vigorously protested against the institution of a Reform Committee.

Dr. H. BECKETT-OVERY defended the action of the Council and warned the meeting against the consequences of forcibly turning them out.

The resolution when at length put to the vote was carried by a large majority, 11 voting against it.

A second resolution, proposed by Mr. E. W. LEWIS and seconded by Mr. W. KINGDON, was as follows:—

That pending the formation of the Central Executive, this meeting instructs the Provisional Executive to act as the Central Executive and to do all such acts and things as they may consider necessary to advance the principles already enunciated, and gives them power to co-opt members.

This was carried, and a third resolution, proposed by Mr. C. E. A. HUDDART, seconded by Dr. W. CULVER JAMES, empowering the election of temporary honorary secretaries for the two local divisions, was also agreed to. A vote of thanks to the Chairman was passed with acclamation.

The executive of the Reform Committee will have met before we go to press. It is their intention to draw up a manifesto stating the objects and methods to be adopted by the Committee, and this, we learn, will be issued to the daily press.

Medical News.

UNIVERSITY OF OXFORD.—The following candidates have been successful in the undermentioned examinations:—

FIRST B.M. EXAMINATION.

Organic Chemistry.—E. W. Bowell, J. M. H. Hardman, W. Champneys, G. R. Cowie, G. Donald, S. C. Dyke, G. I. Evans, G. T. Gilmette, F. G. Hobson, T. L. Ormerod, G. Perkins, O. S. Phillips, A. H. Plummer, S. S. L. Steyn, S. C. Varley, J. P. S. Walker, and A. L. Watts.

Human Anatomy and Human Physiology.—J. D. Batt, L. R. Broster, C. M. Burrell, G. Cranstoun, L. Gameson, F. C. Gladstone, C. W. B. Littlejohn, G. P. Selby, and J. F. West.

SECOND B.M. EXAMINATION.

Materia Medica and Pharmacology.—W. H. Bleaden, A. L. Pearce Gould, D. B. I. Hallett, A. Jackson, and G. Stanger.

Pathology.—G. E. Beaumont, G. W. Carte, W. A. Cooke, W. J. Hart, S. Hibbert, A. Juett, W. R. Reynell, E. Scott, P. T. Spencer-Phillips, and E. H. Udall.

Forensic Medicine and Public Health.—W. H. Bleaden, C. H. Budd, N. G. Chavasse, T. B. Heaton, D. P. MacDonald, E. G. Martin, W. J. Oliver, W. J. Pearson, S. S. Strahan, G. H. Varley, W. E. Waller, and J. A. Wood.

Medicine, Surgery, Midwifery.—C. F. Beevor, W. H. Bleaden, P. H. C. Fowell, T. B. Heaton, W. J. Oliver, W. J. Pearson, H. W. Scott-Wilson, S. S. Strahan, C. J. G. Taylor, and W. E. Waller.

The following degrees have been conferred:—

D.M.—H. C. G. Semon.

B.M. and B.Ch.—J. A. Noble, W. J. Pearson, C. J. G. Taylor, W. J. Oliver, W. W. Wagstaffe, W. H. Bleaden, and T. B. Heaton.

At a meeting of the Board of Faculty of Medicine held on Dec. 9th, 1911, the following resolution was passed:—

That the Radcliffe Infirmary, Oxford, be a hospital approved by the Board of Faculty of Medicine for carrying on post-mortem work by students, provided that no student be signed up for this course unless he has (*a*) passed the First B.M. Examination or has taken the Final Honour School of Physiology; (*b*) personally taken part in the actual performance of not less than ten post-mortem examinations; (*c*) regularly attended post-mortem examinations at the Radcliffe Infirmary during not less than two full terms.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—The following are the names of the candidates who were approved at the First Professional Examination held on Jan. 2nd, 3rd, 4th, and 5th in the subjects specified:—

Chemistry and Physics.—Thomas Burton Bailey, Cambridge; John Leycester Dudley Buxton, University College; Henry George Richmond Canning, Portsmouth Grammar School; Oliver Francis Conoley, London Hospital; Frank Barwell Matthews, Middlesex Hospital; Ralph George Mayer, Guy's Hospital; Reginald Stanley Millar, Guy's Hospital; Arthur Llewellyn Spencer Payne, Simon Langton School, Canterbury; Trefor Hughes Rhys, University College, Cardiff; Edwin John Goswycke Sargent, St. Bartholomew's Hospital; and Robert Ockleston Townend, London Hospital.

Chemistry.—Henry Searle Baker, St. Bartholomew's Hospital; Gideon Albertyn Beyers, St. Bartholomew's Hospital; Edwin Alfred Clegg, Middlesex Hospital; Leonard Henry Dardier, London Hospital; John Turnbull Thomson Forbes, Guy's Hospital; William Vincent Gabe, Middlesex Hospital; Wilhelm Otto Holst, Middlesex Hospital; Henry David Llewellin Jones, St. Mary's Hospital; Theodore Louis Kan, King's College; Guy Kinneir, St. Bartholomew's Hospital; William Ulic Desmond Longford, St. Bartholomew's Hospital; Rupert Idris Rhys, University College, Cardiff; George Cuthbert Robinson, St. Thomas's Hospital; George William Wheldon, Guy's Hospital; and Harold Ernest Poerpoint York, St. Bartholomew's Hospital.

Physics.—Reginald George Joseph Charlesworth, Charing Cross Hospital; David MacMurray Dickson, St. Thomas's Hospital; Claude Henry Fischel, Middlesex Hospital; Reginald Fitzroy Jarrett, London Hospital; Roy Dyson Langdale-Kelham, University College; Frederick Gilbert Laughton Scott, Oxford University; Mian Mohammad Shafi, London Hospital; Charles Montague Slaughter, St. Thomas's Hospital; and Arthur Sunderland, Charing Cross Hospital.

Biology.—Douglas Harris Anthony, St. Mary's Hospital; Noel Arthur Hamilton Barlow, Guy's Hospital; Antoun Bishara, Cairo and St. Thomas's Hospital; Leslie Graham Blackmore, Middlesex Hospital; George Lambert Cutts, Guy's Hospital; Gauri Dayal, Bombay and Manchester Universities; Alfred Beresford Dummere, London Hospital; John Henry Cox Eglington, Bristol University; John Turnbull Thomson Forbes, Otago University and Guy's Hospital; William Norman Harrison, St. Mary's Hospital; Charles Gordon Hooper, King's College; Reginald Fitzroy Jarrett, London Hospital; Charles Hanmer Jenkins, London Hospital; Henry David Llewellin Jones, St. Mary's Hospital; Paul Ellis Rustat Kirby, Brighton Technical School; Eldon Munro Litchfield, New Zealand University and Guy's Hospital; Reginald Stanley Millar, Guy's Hospital; Sadek Girgis Moftah, Cairo and London Hospital; Lionel Watson Moore, Guy's Hospital; George Vaughan Richards, Guy's Hospital; Edwin John Goswycke Sargent, St. Bartholomew's Hospital; Ram Singha, Punjab University and London Hospital; Eric Lionel Stephenson, London Hospital; Ernest Wayte Terry, Manchester University; Robert Ockleston Townend, London Hospital; Cecil Pembrey Grey Wakeley, King's College; and Henry George Watters, London Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the Preliminary Science Examination for the Licence in Dental Surgery on Jan. 2nd, 4th, and 5th the following candidates were approved in the subjects indicated:—

Chemistry and Physics.—Lawrence Barnard Carlton, Birmingham University; Louis Edmund Claremont, Royal Dental Hospital; Donald Clewer, Brighton Technical College; William Edwin Dodd, Wandsworth Technical Institute; Herbert Reginald Evans, Royal Dental Hospital; Norman Leigh Evans, Manchester University; Gerald Mackenzie Hickley, Westminster Hospital and King's College; Kenneth Fergus McAlpin, Wandsworth Technical Institute; Joshua Laurence Oates, Guy's Hospital; Herbert Percy Parkes, Guy's Hospital; Reginald Jack Pickett, Guy's Hospital; Maurice Oliver Simpson, Birkbeck College and St. Paul's School; and Marjorie Jane White, Bristol University.

Chemistry.—Frederick James Arbery, Charing Cross and Royal Dental Hospitals; Harry Edward Attkins, Birkbeck College; Kenneth Charles Brough, Guy's Hospital; Ellis Gardner Browne, Royal Albert Memorial College, Exeter; Stephen Alphonsus McCormack, Queen's College, Belfast; Edgar William Smith, Polytechnic Institute; Arthur Herbert Virgin, Bristol University; and Frank Edward Welton, Municipal Technical College, Hull.

Physics.—Harold Beddoes, Birmingham University; Frank Briggs Cullen, University College, Nottingham; Edmund Dinsmore, Polytechnic Institute and Charing Cross Hospital; Maurice George Henry, Guy's Hospital; Joseph James Lackett Hollington, Brighton Technical College; Edgar Clarence Lewis, Guy's Hospital; Fairman John Ordish, Guy's Hospital; Tom Geoffrey Melsome Parker, Middlesex Hospital; and Willem Jacobus Rousseau Viljoen, Guy's Hospital.

UNIVERSITY OF BIRMINGHAM: FACULTY OF MEDICINE.—The following is the list of successful candidates at examinations held in December, 1911:—

Degrees of Bachelor of Medicine and Bachelor of Surgery (Final).—Class II.: James Henry Bampton, Robert Baxendell Coleman, Christopher Charles Cole Court, and Percy Alfred Newton.

Diploma in Dental Surgery (Final).—John Jessop and Edgar George Jones.

Third Examination for the Diploma in Dental Surgery (Anatomy and Physiology, and Dental Anatomy and Dental Histology).—Percy Ashton (Anatomy, Physiology).

First Examination for the Diploma in Dental Surgery (completed the Examination).—Harold Gordon Stewart Thornton.

ROYAL MICROSCOPICAL SOCIETY.—At a meeting held on Dec. 20th, 1911, Mr. H. G. Plimmer, the President, being in the chair, Mr. Rousselet described a reflecting microscope by John Cuthbert, which had been presented to the society by the committee of the Quekett Microscopical Club. Mr. Rousselet traced the history of the reflecting microscope from 1672, when Isaac Newton first suggested its construction to the Royal Society, down to 1827–8 when Cuthbert, at the suggestion of Dr. Goring, produced the design exhibited. An address of much physiological interest was then delivered by Dr. F. Shillington Scales. Taking for his subject the Photomicrography of the Electrical Reaction of the Heart, he said at the outset that the multiplicity of details and precautions requiring attention in this method of observation would probably prevent it from coming into general use for clinical purposes, and that it would not supersede auscultation, percussion, blood counts, blood pressure records, and skiagraphy. The physiological basis of the method was the fact that in muscular contraction the portion A undergoing contraction was at a higher electrical potential than the relaxed portion B, and there was deflection of a galvanometer brought into a circuit uniting two such portions of a muscle. When the contraction passed from A to B the potential of B exceeded that of A, and in the galvanometer there was now a deflection in the opposite direction. These minute differences of potential could only be detected by Einthoven's string galvanometer, an instrument of the moving coil type in which the ordinary moving coil was replaced by the "string"—a quartz fibre 2 or 3μ in diameter and coated with silver to render it a conductor of electricity. The indications of the galvanometer were recorded by the movement of a spot of light reflected from the instrument, the adjustment used by Dr. Scales being such that a deflection of one centimetre corresponded to a difference of potential equal to one millivolt. The electrodes forming the galvanometer circuit are not applied to the body in the neighbourhood of the heart. They may be in many positions, but to facilitate comparison of results three principal "leads" have been agreed on—namely, from the right hand to the left hand, from the right hand to the left foot, and from the left hand to the left foot. In the case of the human subject the individual is not in any way disturbed as he lies in bed. The electrical connexions are made by metal plates applied to the above-mentioned regions, and wires attached to these plates convey the current to the galvanometer, which need not be in the same building as the patient, but may be in a distant place if the necessary wires are provided. Cardiograms representing a variety of organic lesions of the heart were shown as lantern pictures; one of them was remarkable from the fact that it indicated the existence of ventricular fibrillation, and Dr. Scales was able to predict the imminent death of the patient from the movements of the galvanometer observed in a building at a considerable distance. Many cardiograms were also exhibited showing the effects produced by various drugs on the heart of the lower animals, including the action of muscarine and adrenalin in the frog, and adrenalin, pilocarpine, atropine, chloral hydrate, chloroform, and squill in the cat.

THE BEIT FOUNDATION FOR MEDICAL RESEARCH.—At a recent meeting of the trustees of the Beit Memorial Fellowships for Medical Research the following were elected to Fellowships: P. G. E. Bayou, doctor of medicine in the University of Würzburg, late medical officer for sleeping sickness investigations in Uganda. Proposed research: Investigation on the streptothrix stages of various acid-fast germs (to be carried out at the Lister Institute and, if possible, at a leper camp). E. V. Cooper, B.Sc. Lond., Jenner Memorial Research Scholar. Proposed research: Investigation of the protective and curative properties of selected foodstuffs and other substances against beri-beri (to be carried out at the Lister Institute). Elizabeth T. Fraser, M.B., Ch.B. Glasg., assistant bacteriologist to the Glasgow Royal Infirmary. Proposed research: Investigation of the value of the complement fixation test in tuberculosis as a guide to diagnosis and treatment (to be carried out at the laboratories of the Royal Infirmary, Glasgow). G. Graham, M.B. Cantab., late house physician at St. Bartholomew's Hospital. Proposed research: Metabolism in health and disease (to be carried out at St. Bartholomew's Hospital and at Munich). J. A. Gunn, M.D., D.Sc. Edin., F.R.S.E., second assistant in materia medica department of the University of Edinburgh. Proposed research: Investigation of the toxicity and trypanocidal action of arsen-lecithide, of the action of hormaline on the uterus as a possible substitute for ergot, and of natural immunity to certain glucosides (to be carried out at University College, London). W. H. Harvey, M.D. Toronto, Cambridge University. Proposed research: Investigation of the pathological condition of kidneys brought about by products of putrefaction in alimentary canal (to be carried out in the Pharmacological Laboratory of the University of Cambridge). J. L. Jona, M.B. Melbourne, D.Sc Adelaide, assistant lecturer and demonstrator in physiology in the University of Melbourne. Proposed research: Investigation of the toxæmias attendant on pregnancy and childbirth (to be carried out at the Lister Institute). R. N. Norris, M.Sc. Manchester, engaged in research work at Manchester. Proposed research: Investigation of the formation and metabolism of glycogen in the organism and its bearing on diabetes (to be carried out at the Lister Institute). C. H. O'Donoghue, B.Sc. Lond., assistant to Jodrell Professor of Zoology at University College, London. Proposed research: Development, morphology and physiology of mammary apparatus (to be carried out at University College, London). C. C. Twort, M.B., Ch.B. Aberd., research worker at the Brown Institution and at the Pasteur Institute. Proposed research: Investigation of the relation of immunity reactions in Johne's disease of cattle to leprosy, and to human, bovine, and avian tuberculosis (to be carried out at the Brown Institution). Each fellowship is of the annual value of £250, and the usual tenure is for three years with a possible extension of time in exceptional cases of an additional twelve months.

A dinner under the auspices of the Joint Committee of Medical Officers Associations, consisting of representatives from the following associations and societies—Certifying Factory Surgeons, Metropolitan Water Board Surgeons, Medical Officers of Health, Police Surgeons, Poor Law Medical Officers, Postal Medical Officers, and Public Vaccinators—will be held at the Holborn Restaurant on Friday, Jan. 19th, at 7 30 for 8 P.M., with Mr. W. G. Bott in the chair. Tickets 5*s.* 6*d.*, exclusive of wine. Members of the constituent associations willing to attend are requested to send their names to the honorary secretary, Mr. D. A. Belilios, 109, Queen's-road, Wimbledon.

COLONIAL MEDICAL SERVICES.—*West African Medical Staff:* Dr. J. G. Copland and Dr. O. G. F. Luhn, medical officers, Southern Nigeria, have resigned; Dr. A. Bremner, medical officer, Northern Nigeria, has been transferred to Sierra Leone; and the following appointments to the staff have been notified: Dr. W. I. Martyn-Clark and Dr. E. J. Wyler (Southern Nigeria). *Other Colonies and Protectorates:* Dr. W. Gilfillan has been selected for appointment as assistant medical superintendent of the Lunatic Asylum, Trinidad; Mr. E. H. Smith has been selected for appointment as supernumerary surgeon on the medical staff, Trinidad; Dr. W. H. C. Patrick and Dr. J. H. Cooke have been selected for appointment as district medical officers in Cyprus; Mr. J. G. Morgan has been selected for appointment as medical officer in Nyasaland; Mr. T. S. Davies has been selected for appointment as supernumerary medical officer in the Leeward Islands; and Dr. E. K. Lomas has been selected for appointment as medical officer in the Straits Settlements.

DONATIONS AND BEQUESTS.—The Chelsea Hospital for Women has received £250 from the executors of the late Mrs. Barnato, given under the exercise of their discretionary powers.—The After-Care Association for Poor Persons Discharged Recovered from Asylums for the Insane, Church House, Westminster, has received donations of £20 from the Clothworkers' Company and £10 10*s.* from the Skinners' Company.—Sir Charles Gold has given a donation of £1000 to the Bishops Stortford Hospital as a memorial to the late Lady Gold, who was a native of the town of Bishops Stortford.—The executors of the late Mrs. C. M. Barnato have made a grant of £1000 to the special ward for women and children at the Middlesex Hospital.—The late Mr. Isaac Gilman, of Warrington, has left by will £1000 each to the Warrington Infirmary, the Warrington District Nursing Association, and the Manchester Royal Infirmary, free of duty. On the death of his cousin and sister-in-law, the Warrington Infirmary will receive £2000 and the Altrincham Provident Dispensary and Hospital £1000.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill have in the press a work on "Microbiology for Agricultural and Domestic Science Students," by various contributors. It is edited by Charles E. Marshall, professor of bacteriology and hygiene in the Michigan Agricultural College. Other books which will shortly be issued by this firm are: "Diseases of the Stomach, with Special Reference to Treatment," by Charles D. Aaron, Sc.D., M.D., professor of gastro-enterology and adjunct professor of dietetics in the Detroit College of Medicine; "Who's Who in Science, 1912," edited by H. H. Stephenson—an international biographical directory of the world's leading scientists; and "The Annual Tables of Constants and Numerical Data: Chemical, Physical, and Technological," under the authority of the International Congress of Applied Chemistry. The tables are intended to contain all the numerical data likely to be of interest in connextion with chemistry, physics, and allied sciences to be found in the most recent literature.

HENRY SAXON SNELL PRIZE.—The Henry Saxon Snell Prize, which was founded to encourage improvements in the construction or adaptation of sanitary appliances by a legacy left by the late Henry Saxon Snell, will be offered in the year 1912 by the Royal Sanitary Institute for an essay on "Suggestions for Improvements in the Ventilating, Lighting, Heating, and Water-supply Appliances and Fittings for an Operating Room and its Accessory Rooms for a General Hospital of 400 Beds where there are no Students." The prize will consist of £52 10*s.* and the silver medal of the Royal Sanitary Institute. The essay must consist of not more than 5,000 words, and must be delivered before 4 P.M on or before August 30th, 1912, addressed to the Secretary of the Royal Sanitary Institute, 90, Buckingham Palace-road, London, S.W. Should none of the essays be considered of sufficient merit or importance to deserve the prize offered the council reserves the right of withholding the award. Full particulars, including information with regard to points with which essays must deal, can be obtained from the Secretary at the Institute.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London. (Published for DEPARTMENT OF EDUCATION, SUDAN GOVERNMENT, Khartoum.)

Second Review of Some of the Recent Advances in Tropical Medicine, Hygiene and Tropical Veterinary Science. Being a Supplement to the Fourth Report of the Wellcome Tropical Research Laboratories at the Gordon Memorial College, Khartoum. By Andrew Balfour, M.D., B.Sc., F.R.C.P. Edin., D.P.H. Camb., Director, and Captain R. G. Archibald, M.B., R.A.M.C., attached E.A., Pathologist and Assistant Bacteriologist, in Collaboration with Captain W. B. Fry, M.R.C.S., L.R.C.P., R.A.M.C., attached E.A., Protozoologist and Assistant Bacteriologist, and Captain W. R. O'Farrell, L.R.C.P. & S.I., R.A.M.C. Price 15*s.* net.

CASSELL AND CO., LIMITED, London, New York, Toronto, and Melbourne.

British Red Cross Society Training Manual No. 3. Issued with the Approval of the War Office. By James Cantlie, M.A., M.B., F.R.C.S., V.D., Hon. Surgeon-Colonel, R.A.M.C. (T.F.). Price not stated.

Essays on Duty and Discipline. A Series of Papers on the Training of Children in Relation to Social and National Welfare. Price 3*s.* net.

A System of Surgery. Edited by C. C. Choyce, B.Sc., M.D., F.R.C.S., Dean of, and Teacher of Operative Surgery in, the London School of Clinical Medicine (Post-Graduate). Pathological Editor, J. Martin Beattie, M.A., M.D., C.M., Professor of Pathology and Bacteriology, and Dean of the Faculty of Medicine, in the University of Sheffield. In three volumes. Volume I. Price 21*s.* net.

CHURCHILL, J. AND A., London.

Poliomyelitis in Relation to the Spread of Infection by Schools. By Frederick E. Batten, M.A., M.D., F.R.C.P. Issued by the Medical Officers of Schools Association. Price 1*s.* net.

FROWDE, HENRY, Oxford University Press, London, Edinburgh, New York, Toronto, and Melbourne.

On Bronchial Asthma, its Pathology and Treatment. By J. B. Berkart, M.D., late Physician to the City of London Hospital for Diseases of the Chest. Revised and abridged. Third edition. Price 5*s.* net.

LEWIS, H. K., London

Stepping Stones to Health on the Nile. By Frederick W. Saunders, M.B., B.C. Cantab., late Superintendent Medical Officer of the Luxor Hospital, Luxor; Member of the British Climatological Society. Price 1*s.* net.

MACLEHOSE, JAMES, AND SONS, Glasgow.

The Growth of Bone: Observations on Osteogenesis. An Experimental Inquiry into the Development and Reproduction of Diaphyseal Bone. By William Macewen, F.R.S. Price 10*s.* net.

MAYNE (ALEXANDER) AND BOYD, 2, Corporation-street, Belfast.

Applied Anatomy of the Lungs and Pleural Membranes, with Special Reference to the Apical Region of the Chest. By J. Stuart Dickey, M.D., B.Ch., Senior Demonstrator of Anatomy, the Queen's University of Belfast. Price 5*s.* net.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, Sixty-Sixth Street and Avenue A, New York, U.S.A.

Studies from the Rockefeller Institute for Medical Research. Reprints. Vol. XIII. Price not stated.

SANITARY PUBLISHING COMPANY, LIMITED, 5, Fetter-lane, London, E.C.

The Sanitary Record Year Book and Diary, 1912. Price 2*s.* 6*d.* net.

Pocket Notes and Remembrancer for Sanitary Inspectors and all engaged in Public Health Work. By J. T. Cowderoy, Chief Sanitary Inspector, Borough of Kidderminster. Fourth edition, revised and enlarged. Price 2*s.* net.

SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.

Sexual Disease and its Medical Prevention. By H. N. Robson, M.R.C.S. Eng., L.R.C.P. Lond. Third edition. Price 3*s.* 6*d.* net.

THRIFT PUBLISHING COMPANY, 141, Broadway, New York City.

The Mortality of Alcohol. A Statistical Approximation of the Deaths in the United States in Which Alcohol May Figure as a Causative or Contributory Factor. By Edward Bunnell Phelps, M.A., F.S.S. Reprinted from The American Underwriter Magazine and Insurance Review, Vol. XXXVI., No. 1 (September, 1911). Price $2.00.

UNIVERSITY PRESS, Aberdeen.

University of Aberdeen. Subject Catalogue of the Phillips Library of Pharmacology and Therapeutics. 615. Price not stated.

WOODALL, MINSHALL, THOMAS AND CO., Caxton Press, Oswestry. (REGISTRAR OF THE UNIVERSITY OF WALES, UNIVERSITY REGISTRY, Cathays Park, Cardiff.)

The Calendar of the University of Wales for the Academic Year, 1911-1912. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

CRAWFORD, W. T., M.D. Edin., has been appointed Medical Officer to the Workhouse and Children's Home and District Medical Officer for Worksop.

DUNCAN, F. J. L., M.B., M.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Stromness District of the county of Orkney.

FLEMING, G., M.B., C.M. Edin., M.R.C.P. Edin., has been appointed Medical Officer to Crooksbury Sanatorium, Farnham, Surrey.

GREIG, F. C., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at University College Hospital.

HOPKINS, H. L., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at the Derbyshire Royal Infirmary.

KENNEDY, THOMAS, has been appointed House Surgeon at the Fermanagh County Hospital.

LEIGH, W. H., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Westhoughton District of the county of Lancs.

SMALLEY, A. ASHTON, M.B., Ch.B. Vict., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the Derbyshire Royal Infirmary.

TAYLOR, J., M.R.C.S., L.R.C.P. Lond., has been appointed Obstetric Assistant at University College Hospital.

TONKS, J. W., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at University College Hospital.

VAUGHAN, A. L., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Diss District of the county of Norfolk.

WELCH, H. V., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the Derbyshire Royal Infirmary.

WILLIAMS, O. E., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Surgeon at the Derbyshire Royal Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, EASTERN DISPENSARY.—Resident Medical Officer, unmarried. Salary £130 per annum, with rooms, attendance, &c.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary £70 per annum, with apartments, board, and attendance.

BIRMINGHAM GENERAL HOSPITAL.—Honorary Physician.

BIRMINGHAM INFIRMARY, Dudley-road.—Pathologist. Salary £250 per annum.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Second House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CROYDON GENERAL HOSPITAL.—Junior House Surgeon. Salary £75 per annum, with board, laundry, and residence.

CROYDON MENTAL HOSPITAL, Upper Warlingham, Surrey.—Pathologist and Third Assistant Medical Officer. Salary £200 per annum, with quarters, board, and laundry.

EDINBURGH UNIVERSITY.—Examiner in Midwifery.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, London, S.E.—Second Anæsthetist. Salary 12 guineas per annum. Also Surgeon to Out-patients.

GLOUCESTER COUNTY ASYLUMS.—Assistant Medical Officer, unmarried. Salary £150 per annum, with rooms, rations, laundry, and attendance.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—House Surgeon and House Physician for six months. Salary at rate of £40 per annum, with board, lodging, and laundry.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £75 per annum, with board, residence, and laundry.

HACKNEY UNION INFIRMARY, High-street, Homerton, N.E.—Two Assistant Resident Medical Officers. Salary £120 per annum, with rations, apartments, and attendance.

HARTSHILL, STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY.—House Surgeon. Salary £100 per annum, with apartments, board, and washing.

HELLINGLY, EAST SUSSEX COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, washing, and attendance.

HITHER GREEN, S.E., PARK HOSPITAL FOR CHILDREN.—Senior Assistant Medical Officer. Salary £250 per annum, with board, lodging, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.

LANCASTER, BOROUGH OF.—Medical Officer of Health. Salary £400 per annum.

LARBERT, STIRLING DISTRICT ASYLUM.—Second Assistant Medical Officer. Salary £130 per annum, with board, &c.

LEAMINGTON SPA, WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary £85 per annum, with residence, board, and laundry.

LEICESTER INFIRMARY.—Assistant House Physician and Assistant House Surgeon for six months. Salary in each case at rate of £80 per annum, with board, apartments, and washing.

LIVERPOOL WORKHOUSE HOSPITAL, Brownlow Hill.—Resident Assistant Medical Officer. Salary £100 per annum, with apartments, &c.

LONDON LOCK HOSPITAL AND RESCUE HOME, Harrow-road, Paddington, W.—Honorary Dental Surgeon to Female Hospital and Rescue Home.

LONDON TEMPERANCE HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £105 per annum. Also Medical Registrar. Salary at rate of 40 guineas per annum.

MACCLESFIERD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MARGARET-STREET HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, 26, Margaret-street, W., FAIRLIGHT SANATORIUM FOR MEN, AND MARGARET-STREET SANATORIUM FOR CHILDREN.—Honorary Assistant Physician.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood.—House Physician at Northwood. Salary £75 per annum, with board, residence, and washing.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Resident Medical Officer. Salary £100 per annum, with board and residence.

NORTHAMPTON GENERAL HOSPITAL.—House Surgeon. Salary £90 per annum, with apartments, board, washing, and attendance.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—Honorary Physician to Out-patients.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Surgeon-in-Charge of Ear, Nose, and Throat Department.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Female Curator. Salary £50 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 per annum, with board and residence.

ST. BARTHOLOMEW'S HOSPITAL.—Physician.

ST. PAUL'S HOSPITAL FOR SKIN AND URINARY DISEASES, Red Lion-square, W.C.—Clinical Assistant.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, &c.

SHEFFIELD ROYAL INFIRMARY.—Junior Resident Medical Officer. Salary £60 per annum.

SHOREDITCH AND FINSBURY TUBERCULOSIS DISPENSARY.—Medical Officer. Salary £250 per annum.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior and Junior House Surgeon. Salary £100 and £90 per annum respectively, with residence, board, and washing.

STAFFORD, COTON HILL LUNATIC HOSPITAL.—Assistant Medical Officer. Salary £125 per annum, with residence, board, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician and House Surgeon for six months. Salary £40, with board, lodging, and laundry.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Assistant Anæsthetist.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician. Salary £80 per annum.

WORCESTER GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Bruton, in the county of Somerset; at Cinderford, in the county of Gloucester; at Kingstown, in the county of Dublin; at Saltcoats, in the county of Ayrshire; and at Stock, in the county of Essex.

Births, Marriages, and Deaths.

BIRTHS.

ANDERSON.—On Dec. 31st, 1911, at Horsmonden, Kent, the wife of F. T. Anderson, M.D., of a son.

LACK.—On Jan. 1st, at Devonshire-place, W., the wife of Dr. Lambert Lack, of a daughter.

MARRIAGES.

GAMBIER—CUTTING.—On Dec. 21st, 1911, at Hastings, Thomas Gambier, M.D., to Ethel Sophia Cutting, B.A., daughter of Arthur Cutting, of Birmingham.

SHIPWAY—BIDDELL.—On Jan. 6th, at Holy Trinity Church, Brompton, Francis Edward Shipway, M.D., to Winifred Adine, elder daughter of William R. Biddell, of Sherwood Oaks, Kenley.

WARREN—JENKINS.—On Jan. 10th, at St. Paul's Church, Ramsgate, by the Rev. G. P. Haydon, uncle of the bridegroom, Richard Warren, F.R.C.S., M.Ch., of 29, Weymouth-street, W., younger son of General Sir Charles Warren, G.C.M.G., J.P., to Violet Irené, eldest daughter of A. C. Jenkins, Esq., of Rose Cottage, Heamoor, Cornwall.

DEATHS.

GAMGEE.—On Jan. 7th, at 45, York-road, Edgbaston, Marion, wife of the late Joseph Sampson Gamgee, of Birmingham, aged 72.

JEX-BLAKE.—On Jan. 7th, at Windydene, Mark Cross, Sussex, Sophia Jex-Blake, M.D., in the 72nd year of her age.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

VITAL STATISTICS OF BRITISH GUIANA.

In the report of the Blue-book of British Guiana for the year 1910–1911, received at the Colonial Office last month, it is stated that a census was taken on April 2nd, 1911, when the population was returned at 296,713 souls, exclusive of the aboriginal Indians in the unfrequented portions of the colony. There were 8332 births registered during the year. The birth-rate per 1000 of the estimated population of each of the different races representing the community was in 1910 as follows: Europeans, other than Portuguese, 13·9; Portuguese, 23·2; East Indians, 24·4; Chinese, 35·6; aborigines, 65·1; blacks, 29·7; mixed races, 27·0. With the exception of Europeans, Chinese, and aborigines, which show increases, a decrease has been noted in respect of each race on the figures for 1909. On the figures for 1908 there is an increase as regards each race except Europeans and mixed races, which show slight decreases, and East Indians, which figure remains the same. [Of the births registered 3325, or 39·9 per cent., were legitimate and 5007, or 60·1 per cent., illegitimate. The deaths registered were 10,424, or 1057 more than in the previous year, when the deaths were 14 less than in 1908. The death-rate was 34·4 per 1000 of the estimated population, as compared with 30·0 in 1909 and 30·8 in 1908. The mean rate for the previous five years was 30·8. There were 1954 deaths of children under one year of age, or 234 per 1000, the previous year's figures having been 1872, or 209 per 1000. The figures of 1910, however, are lower than in 1907, when they were 2202, or 256 per 1000. The mean rate for the past five years continues at 210 per 1000.

The health of the colony showed no marked improvement over the previous year. There was no epidemic of any dangerous, infectious, or contagious disease, though the existence of yellow fever and plague in neighbouring places gave rise to considerable anxiety. Efforts are being made by legislative and other action to control the mosquito pest. The number of screened vats has been greatly increased. Quinine is sold at all post offices to the general public at cost price; it is also distributed by the sugar estates free to their labourers. Prisoners and members of the police force are supplied by the colony with free quinine. There were 7556 fewer cases of malarial fever treated in the estates' hospitals than in the previous year. The medical department continues to give attention to the question of ankylostomiasis, and the interest that has been aroused in this connexion among the employers of labour on the sugar estates and among the labourers themselves is bearing fruit. The five principal causes of death throughout the colony during the past five years are given by the Registrar-General as follows: Malaria, 20·2 per cent.; pneumonia and bronchitis, 12·7 per cent.; kidney diseases, 12·4 per cent.; diarrhœal diseases, 7·1 per cent.; phthisis and other forms of tuberculosis, 6·0 per cent. The total rainfall for the calendar year 1910 at the Botanic Gardens, Georgetown, was 101·46 inches. The amount of sunshine recorded during the year was 2391 hours. The hospitals and asylums of the colony were maintained during the year in their usual efficient condition. There are five public hospitals in the principal centres of population, and the outlying districts are served by dispensary hospitals and dispensaries. The immigration law also requires the maintenance of hospitals on every plantation on which there are indentured East Indian labourers, and those institutions are available for the treatment of emergency and pauper cases from the general community. There were 655 patients in the public hospitals at the beginning of the year, and 16,331 were admitted during the year. The daily average under treatment was 712. There were 2046 deaths. In addition to those admitted to hospital, outdoor treatment was given to 74,877 persons.

At the Leper Asylum there were 413 patients when the year began—287 males and 126 females—and during the year 121 were admitted. The Lepers Ordinance, 1905, allowed lepers to be isolated in private at their homes instead of being sent to the Leper Asylum when the governor is satisfied that it can be done without danger of infection to other persons. But it is now known that lepers suffering from ulcers are a far more dangerous source of infection than others, and accordingly a new ordinance has been passed, providing that such lepers shall not be isolated in private, but must be sent to the Leper Asylum.

THE PREVENTION OF DISEASE AND THE SAVING OF LIFE BY THE DESTRUCTION OF MOSQUITOES.

We have received from Dr. H. A. Alford Nicholls, C.M.G., Senior Medical Officer of Dominica, an interesting little pamphlet with the above title, intended for public instruction among the people of Dominica and other mosquito-infested districts. It makes no pretence to originality, but it is an unusually clear, concise, and useful statement for the public of what everyone living in such a district should know in relation to the connexion of mosquitoes with disease, the life-history of the three disease-carrying mosquitoes, and the best methods of dealing with them. It is just the kind of pamphlet to be read with the intelligent interest necessary as a stimulant to action. It is printed at the Bulletin Office, Roseau, Dominica, West Indies.

"THE CHEMICAL WORLD."

We have received from Messrs. J. and A. Churchill a copy of the first number of *The Chemical World*. This periodical is to be published in monthly numbers, and judging from the excellent series of articles in the first number we anticipate that it will appeal to a wide *clientèle*, chiefly to those interested in the advances of chemical science and technology. Amongst the interesting articles in the first number are "The Physics and Chemistry of Colloids" (the first of a series), "The Food and Drugs Acts and a Court of Reference," "Notes on Chemical Research," "The Detection of Mydriatic Alkaloids," "The Chemical Characterisation of Soils," "Cellulose and Cellulose Products," and "Chemical Research." The journal is well printed, and its general plan is attractive.

Communications not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

We shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for the next few months:—

Jan. 20th–27th (Hong-Kong).—Second Biennial Congress of the Far Eastern Association of Tropical Medicine.
Feb. 13th–14th (London).—Central Poor-Law Conference.
March 7th–11th (Berlin).—Thirty-third Balneological Congress.
March 23rd–April 4th (London, Royal Agricultural Hall).—International Smoke Abatement Exhibition.
" (London).—First Congress of Pure Food and Health Society of Great Britain.
April 1st–7th (Tunis).—Twenty-second Congress of French-speaking Alienists and Neurologists.
" 8th–13th (Rome).—Seventh International Congress of Dermatology and Syphilology.
" 8th–15th (Johannesburg).—Thirteenth South African Medical Congress.
" 14th–20th (Rome).—Seventh International Congress on Tuberculosis.
" 15th–18th (Wiesbaden).—Twenty-ninth German Congress for Internal Medicine.
" (Giessen).—Congress on Study of Families, Inheritance, and Race Hygiene.
Spring (London).—Second Optical Convention.
May 7th–17th (Washington).—Ninth International Red Cross Conference.
" 23rd–25th (Hanover).—Nineteenth Meeting of the Union of German Laryngologists.
" 25th–27th (Paris).—International Musical Festival.
" 27th–June 1st (London).—Eighteenth International Congress of Americanists.
" 29th–31st (Berlin).—Fifteenth Session of the German Society for Gynæcology.
" (London).—International Horticultural Exhibition.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 10th, 1912.

Date.		Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan.	4	30·02	S.W.	0·07	54	52	48	48	49	Overcast
"	5	29·53	W.	0·31	65	48	48	48	48	Raining
"	6	29·32	S.W.	0·18	53	51	39	40	40	Raining
"	7	29·05	N.	0·49	57	42	38	37	39	Cloudy
"	8	29·97	S.	...	47	47	34	33	34	Overcast
"	9	29·45	S.	[0·31	69	52	34	46	46	Fine
"	10	29·95	S.W.	...	58	48	41	41	42	Foggy

The following journals, magazines, &c., have been received:—Journal of Tropical Medicine and Hygiene, Journal für Psychologie und Neurologie, Therapeutic Gazette, Archives of the Roentgen Ray, St. Bartholomew's Hospital Gazette, Medical Review of Reviews, Encyclopédie Médicale, Prescriber, Die Therapie der Gegenwart, Journal of Laryngology, Rhinology, and Otology, Review of Neurology and Psychiatry, Women's Industrial News.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION (Hon. Secretaries—H. Charles Cameron, H. H. Dale): at 4.30 P.M.

Paper:

Dr. W. Bain: The Causes and Treatment of High Blood Pressure.

PATHOLOGICAL SECTION (Hon. Secretaries—J. C. G. Ledingham, A. E. Boycott): at 8.30 P.M.

Dr. J. Turner: Two Cases of Amaurotic Idiocy.

Dr. J. A. Braxton Hicks: An Unusual Organism (M. zymogenes) in a Case of Malignant Endocarditis.

Dr. J. C. G. Ledingham: Phagocytosis from the Adsorption Point of View.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—J. H. Sequeira, Wilfrid Fox), at 11, Chandos-street, W.: at 5 P.M.

Cases:

Dr. Parkes Weber; Sequel to Case of Chronic Artificial Skin Eruption (shown Dec. 15th, 1910).

Dr. Sequeira: Cultures of Tricophyton Plicatile obtained by Dr. Sabouraud from Dr. Sequeira's Case of Ringworm with Granulomata.

NEUROLOGICAL SECTION (Hon. Secretaries—Wilfred Harris, T. Grainger Stewart): at 8.30 P.M.

Papers:

Dr. Howard Tooth and Dr. Hinds Howell: Case of Tabetic Amyotrophy with Pathological Report.

Dr. F. E. Batten: Case of Dermato-Myositis with Pathological Examination.

Dr. Wilfred Harris: Two Cases of Hæmato-rhachis.

FRIDAY.

OTOLOGICAL SECTION (Hon. Secretaries—Sydney Scott, A. Logan Turner), at 11, Chandos-street, W.: at 5 P.M.

Discussion:

Factors which Conduce to Success in the Treatment of Otogenic Brain Abscess (opened by Sir Victor Horsley, F.R.S., and Mr. C. H. West).

Demonstration of Cases and Specimens by other Members.

(The Council of the Section will welcome the presentation not only of patients who have been successfully treated for Otogenic Brain Abscess but also of pathological material bearing on the subject under discussion.)

Members of the NEUROLOGICAL and SURGICAL SECTIONS are specially invited to be present and to take part in the discussion.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretaries—G. Harrison Orton, Cecil R. C. Lyster): at 8.30 P.M.

Paper:

Dr. C. J. Morton: X-Ray Prognosis.

Demonstration:

Dr. James C. Case: X-Ray Stereo Reductions of Bismuth Meals.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.
TUESDAY.—8.30 P.M., Dr. R. R. Rentoul: Sterilisation of the Unfit.

CHELSEA CLINICAL SOCIETY, St. George's Hospital Medical School, S.W.
TUESDAY.—8.30 P.M., Mr. F. D. Mortimer: Preparation for Anæsthesia.—Mr. A. F. Penny: The Importance of Early Diagnosis and Treatment in Acute Inflammatory Diseases of the Middle Ear.

LONDON DERMATOLOGICAL SOCIETY, 48, Leicester-square, W.C.
TUESDAY.—4.30 P.M., Meeting.

ROYAL METEOROLOGICAL SOCIETY, Institution of Civil Engineers, Great George-street, Westminster, S.W.
WEDNESDAY.—7.45 P.M., Annual General Meeting. Election of Council for 1912. Presentation of the Symons Gold Medal to Prof. C. Abbe. Dr. H. N. Dickson: Some Meteorological Observations.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.
WEDNESDAY.—8 P.M., Annual Address:—The President (Mr. H. G. Plimmer): On Certain Blood Parasites.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.
MONDAY.—4 P.M., Dr. G. Little: Clinique (Skin). 5.15 P.M. Lecture:—Mr. M. Little: A New Material for Surgical Appliances (with demonstration).
TUESDAY.—4 P.M., Dr. G. A. Sutherland: Clinique (Medical). 5.15 P.M., Lecture:—Mr. W. Stuart-Low: Nasal Catarrh.
WEDNESDAY.—4 P.M., Mr. C. Rowntree: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. G. Pernet: Animal Parasites.
THURSDAY.—4 P.M., Dr. N. Pitt: Clinique (Medical). 5.15 P.M., Lecture:—Mr. A. McNab: Glaucoma.
FRIDAY.—4 P.M., Mr. E. A. Peters: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Bidwell: Surgical Treatment of Floating Kidney.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11.30 A.M., Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Davis: Diseases of the Throat. (Lecture II.)
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. E. Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine. (Lecture I.)
THURSDAY.—10 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery. (Lecture I.)
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Saunders: Clinical (with cases).
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. B. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham): Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).
TUESDAY.—Clinic: 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld.); Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Dr. A. G. Auld: The Value of X Rays in the Diagnosis of Chest Affections.
WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen): Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks). 4.30 P.M., Lecture:—Mr. W. Stewart: The Therapeutic Uses of X Rays.
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld): Surgical (Mr. B. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.
MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.30 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 3.15 P.M., Special Lecture:—Sir Dyce Duckworth: Rheumatic Fever.
TUESDAY.—2 P.M., Operations. 3.15 P.M., Dr. R. Wells: Medicine. 2.15 P.M., Mr. R. Carling: Surgery. 4.15 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 4.30 P.M., Special Lecture:—Mr. Walton: Diagnosis of Peripheral Nerve Lesions.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 5 P.M., Special Demonstration (or Lecture):—Mr. McGavin: Surgical.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4.30 P.M., Special Lecture:—Dr. Gandy: Anæsthetics.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Sir J. Rose Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—10 A.M., Radiography. 11 A.M., Dr. A. Davies: Pathological Demonstration. 2 P.M., Operations. Out-patient Demonstration:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY.—4 P.M., Lecture:—Mr. E. M. Corner: Delayed Chloroform Poisoning.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.
TUESDAY.—6 P.M., Dr. W. Griffith: Pathology of the Skin Appendages.
THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Acne Vulgaris in its Three Stages—I., Comedo; II., Indurata; III., Necrotica.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
TUESDAY.—3 P.M., Prof. W. Bateson: The Study of Genetics. (Lecture I.)
FRIDAY.—9 P.M., Prof. Sir James Dewar: Heat Problems.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace-road, S.W.
MONDAY.—7.30 P.M., Prof. H. R. Kenwood: Fresh Air (illustrated by lantern slides).
FRIDAY.—4 P.M., Dr. T. D. Lister: Problem of After-care of Sanatoria Patients.

ANCOATS HOSPITAL, Manchester.
THURSDAY.—4.15 P.M., Dr. E. B. Leech: Difficulties in the Diagnosis between Diseases of the Chest and Abdomen. (Post-Graduate Clinic.)

MANCHESTER ROYAL INFIRMARY.
MONDAY.—4.30 P.M., Dr. A. T. Wilkinson: Demonstration of Medical Cases.
FRIDAY.—4.30 P.M., Mr. W. Thorburn: Neuralgia and its Surgical Treatment.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.). Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (17th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's 2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (18th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M., Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.)., Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (20th).—Royal Free (9A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

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THE INDEX TO THE LANCET.

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